NOVEMBER 1952

American Engineer

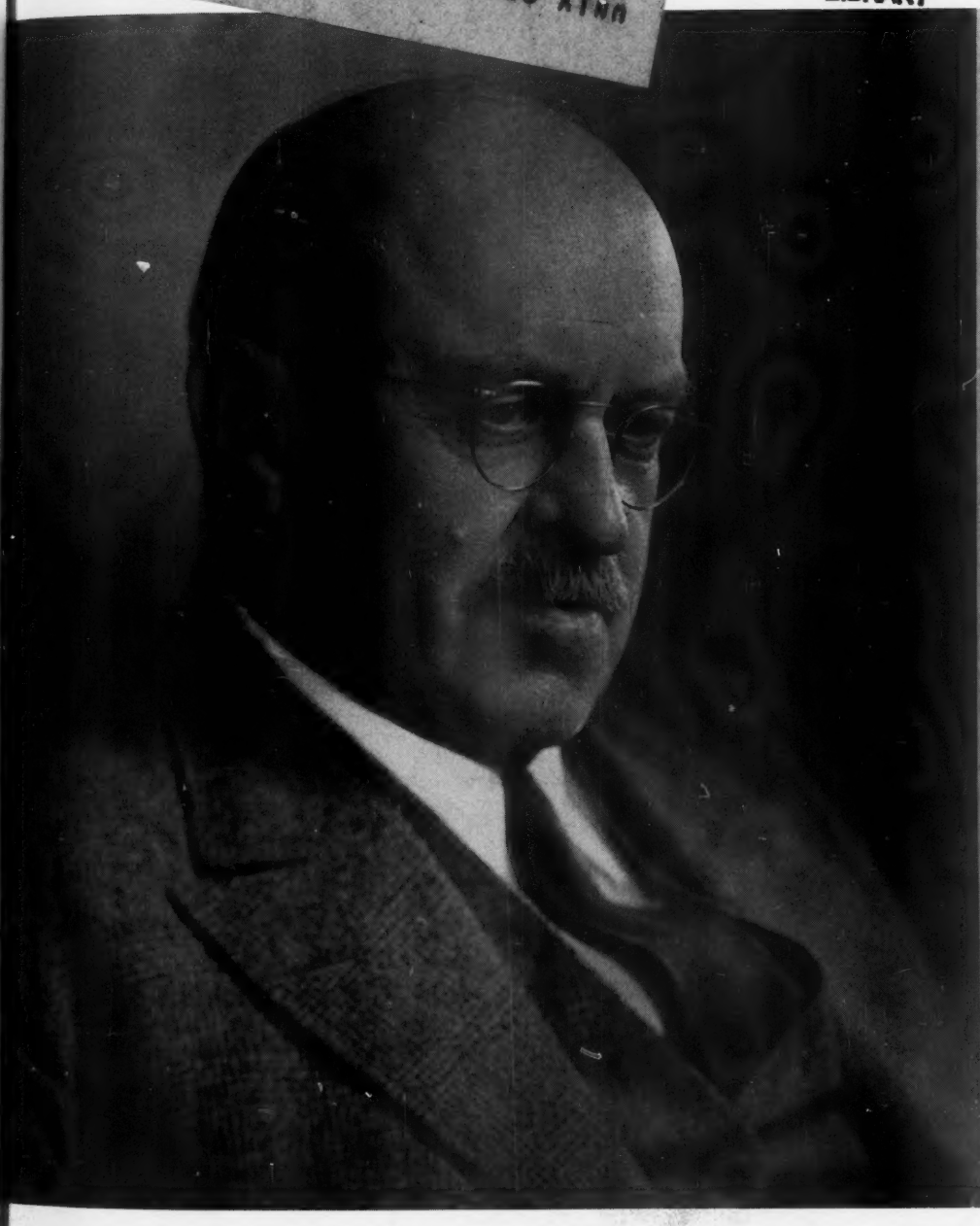
RR

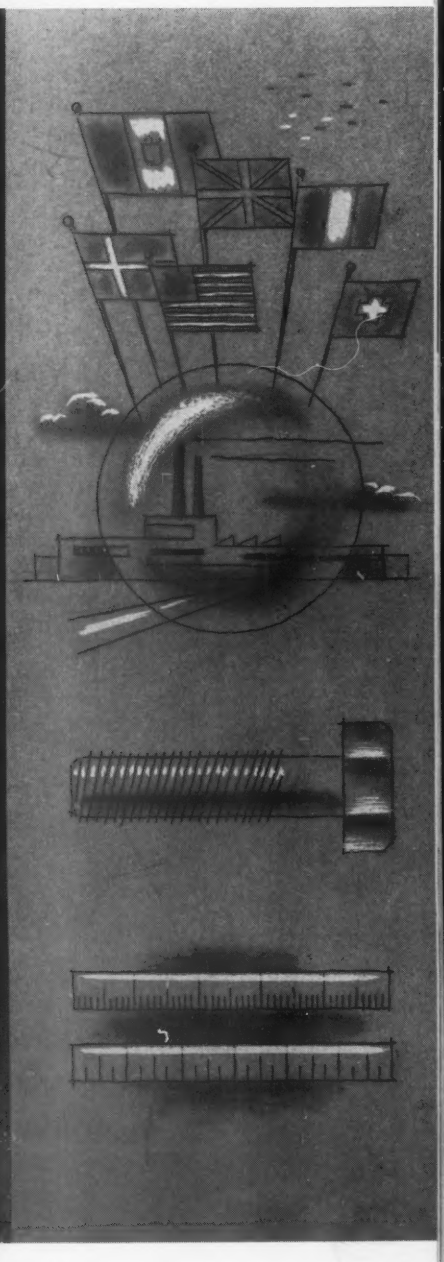
IN THIS ISSUE . . .

● **THE ENGINEERING APPROACH TO OUR PROBLEMS**

By Ralph E. Flanders, P.E., *United States Senator from Vermont*

UNIV OF MICH
NOV 12 1952
ENGINEERING LIBRARY





Senator Ralph E. Flanders Discusses World Standardization and Other Problems

. . . *Also*

Mining the Sea— A Photo Story

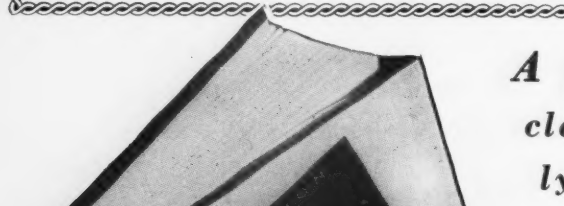
●

Three Big Questions Facing the Profession

●

Nominees for NSPE Officerships, 1953-54

How to make your technical papers models of *clarity, coherence, completeness*



A popular book which explains clearly and convincingly to you the underlying principles of report writing . . .

Just as in everything else, there are important fundamental principles of order and planning and style that can change a muddled and confused technical report into one that is crystal clear. By following these principles as outlined in this book and by adopting a writing attitude that is based on an appreciation of your eventual audience, you can improve your papers immensely. You can learn to give the reader what he wants in exactly the way he wants it—in the form most adaptable to his use.

Just Published—Revised Third Edition

WRITING THE TECHNICAL REPORT

By J. RALEIGH NELSON

Professor Emeritus of English in the College of Engineering, University of Michigan

Third Edition, 356 pages, 5½ x 8½, $4.50

Table of Contents

Part I. The Design of the Report

1. Two Important Definitions
2. Four Important Procedures
3. Two Tests of Progress
4. Three Ways to Help the Reader
5. The Three Primary Functions of the Introduction
6. The Important First Focus of Attention
7. Some Special Problems in Introduction to Reports
8. The Paragraph as an Evidence of Design
9. The Relation of the Paragraph to the Plan
10. Coherence within the Paragraph System
11. Sectional Headings as Evidence of Design
12. Special Types of Paragraph
13. The Terminal Section
14. The Rough Draft
15. Two Tests of Successful Performance
16. The Short-form Report
17. The English of the Report

Part II. Some Suggestions as to the Form and Style of the Report

Stenographic Details
Styling the Report Format
Figures
Tables
Annotated Reports

Part III. The Criticism of the Report

Finding the Point of Attack
A Study of Introductions
Studies in Reorganization
Studies in Coherence

Part IV. Summary of Basic Principles

Prerequisites of a Report
Functions of a Report
Procedure in Writing a Report

Part V. Manual for Class Use

For the Instructor
For the Student
The Reminder Card
In Retrospect

STEP-BY-STEP this authoritative book tells you how to analyze the type of report, how to choose the best form and style, how to organize the material, how to use figures, tables and annotations. And it shows you how to keep the ultimate reader in mind so that the report will be of greatest benefit to him.

Over a quarter century of preparing, supervising, and criticizing technical reports has made the author an outstanding authority on reports and their correct preparation. He knows, and warns against, all the faults, and tells how to avoid them. He has carefully revised this Third Edition in line with present-day requirements and technical data in the field.

This is a book for everyone who realizes how improved reports can eliminate misunderstandings, save time in explanations, demonstrate the writer's knowledge and ability, and create more favorable impressions on employers.

The book consists of five parts. The first deals with the design and composition of the report. The second gives you specific directions for the setup of both long- and short-form reports. These are illustrated by several sample reports annotated for you. The third part of the book outlines a systematic procedure for the critical examination of a report. The fourth, a comprehensive summary, provides a means of ready reference for quick "look-ups." The fifth is a new section on a study course used by the author in his experience with teaching report writing.

New Study-Help In This Edition

An interesting feature of this edition is a new section on a study course successfully used by the author in his college classes. It gives a detailed outline for a 16-week course with assignments, suggestions, references, etc., closely tied in with the book.

While the self-study reader can definitely improve his report writing by reading and application of the book at his own pace, he may well find the "manual" section a time-saving aid to progressive study and improvement in report writing.

Send your order with remittance to:

Department C
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
1121 15th Street, N. W.
Washington 5, D. C.

Letters

Regrettable Error . . .

Dear Editor:

I know that many of our readers will be most concerned over the unfortunate error appearing in the line of type under Dr. Charles Kettering's photograph on the cover of the October issue. Therefore, I think it would be appropriate if a somewhat detailed explanation of how the error occurred appear in the November publication.

A. C. NEFF, P.E.,
Chairman, Publications
Committee, NSPE,
Middletown, O.

▶ Several letters and cards have been received from readers of the *American Engineer* expressing concern over the error referred to in Mr. Neff's letter. For the record, the cover, when approved by the magazine editorial staff, carried the proper wording. Just before going to press, however, the superintendent of the make-up department in the plant, called for a reset of the line because proofs indicated that the type was not giving high quality reproduction. In resetting the line, the operator, a most trusted employee of long experience, subconsciously linked the words "world" and "war" together. Then, in the proofroom, three proofreaders, *one* with twenty-five years' experience, failed to detect an error in the much used term, "World War."

The *American Engineer* has expressed its most sincere apologies to Dr. Kettering, and uses this means to convey its regret to its readers.—*The Editor.*

On Brighter Side . . .

Dear Editor:

I recently had the privilege of seeing a copy of your magazine, and reading the October number in which the interesting article by Dr. Charles F. Kettering appeared. Would 3 copies be available to me?

BERTHA WEIFFENBACH,
Dayton, O.

Dear Editor:

I was very much impressed by the article appearing on pages 9, 10, and 11, of the October issue of THE AMERICAN ENGINEER, written by Dr. Chas. F. Kettering.

(*Continued on page* 5)

ME...an AIRCRAFT ENGINEER...in CALIFORNIA?

Yes, Lockheed can train you—at full pay!

The step up to Aircraft Engineering—and a better life in Southern California—isn't as steep as you might expect.

Aircraft Experience isn't necessary. Lockheed takes your knowledge of engineering principles, your experience in other engineering fields, your aptitude, and adapts them to aircraft work. You learn to work with closer tolerances, you become more weight conscious.

What's more, Lockheed trains you *at full pay.* You learn by doing—in Lockheed's on-the-job training program. When necessary, you attend Lockheed classes. It depends on your background and the job you are assigned. But, always, you learn at full pay.

These opportunities for engineers *in all fields* have been created by Lockheed's long-range production program—building planes for defense, planes for the world's airlines.

And remember this: When you join Lockheed, your way of life improves as well as your work.

Living conditions are better in Southern California. The climate is beyond compare: Golf, fishing, motoring, patio life at home can be yours the year 'round. And your high Lockheed salary enables you to enjoy life to the full.

Note to Men with Families: Housing conditions are excellent in the Los Angeles area. More than 45,000 rental units are available. Thousands of homes for ownership have been built since World War II. Huge tracts are under construction near Lockheed.

Send today for illustrated brochure describing life and work at Lockheed in Southern California. Use handy coupon below.

ENGINEER TRAINING PROGRAM
M. V. Mattson, Employment Mgr., Dept. AE -11

LOCKHEED
Aircraft Corporation
Burbank, California

Dear Sir: Please send me your brochure describing life and work at Lockheed.

My Name _____

My Field of Engineering _____

My Street Address _____

My City and State _____

Professional News in Capsule Form

Army Demonstrates Atomic Artillery • AMA President Gives Good Advice Applicable To Engineers • Engineering Societies Choose Officers • $30,000 Mechanical Design Program • Other News Of Interest

Two engineering societies were choosing new officers during the interval between last month's issue and the time we go to press.

The American Society of Civil Engineers installed Walter L. Huber of San Francisco as head of that group in ceremonies at New York. Mr. Huber succeeded Carlton S. Proctor of New York. Two Vice Presidents, G. Brooks Earnest of Cleveland and Edmund Friedman of Coral Gables, Florida, were also installed.

* * *

The American Society of Heating and Ventilating Engineers nominated an NSPE member, Reg F. Taylor, consulting engineer from Houston, Texas, to the Presidency of the body. Mr. Taylor has held a wide variety of engineering positions and, in 1935-36 was chief mechanical engineer for the Texas Centennial Central Exposition.

* * *

The Army came up with an engineering device during the past month which may radically change the course of modern warfare. It is an artillery piece which has the capability of firing an atomic shell. Initial demonstration of the weapon was held at the Aberdeen (Md.) Proving Ground on October 15.

* * *

Louis H. Bauer, M.D., of Hempstead, New York, President of the American Medical Association, recently wrote a message to members of his group which has a carry-over value for professional engineers. Discussing the problem of public relations, Dr. Bauer said:

"No matter how great an effort is made by the headquarters of the American Medical Association to acquaint the public with a particular activity or viewpoint of the profession, that effort will be nullified unless the individual members do their share. They must also work toward common goals and uphold the standards of medicine. . . .

"The time is long since past when a physician could devote himself only to the scientific aspects of medicine. He must consider and be familiar with the social and economic aspect as well. He must take an active part in his county medical society. The county medical society in some areas is an organization highly influential and respected; in other areas it has lost or failed to gain this position. The usual reason for such failure is that a great many members do not attend meetings or take an interest in its activities. Where medical societies are inactive, other organizations acquire the support of the public, sometimes to the detriment of medical and public interests. County societies must actively demonstrate to the citizens of their area that they exist primarily for the betterment of medical care and public health in the community.

Individual Member's Responsibility

"If you, as an individual physician, do not attend your county society meetings or take an active part in its program because you feel that you are not in sympathy with its objectives, the fault is yours. Remember that no society is ever going to adopt or adhere to any policy that is in conflict with the wishes of the majority of its members. To do so would be suicidal. A minority can rule only if the potential majority turns its back on the society and ignores its medical organizational responsibilities. . . .

"The implementation of policies and beliefs is all-important. It is of little avail for the Association to announce the amount of free work done by physicians, to pass resolutions against exorbitant fees or 'kickbacks,' or to campaign for voluntary health insurance when some physicians proceed to overcharge, to split fees, or to belittle voluntary insurance.

"Once sound policies are established and are being implemented, the next step is to inform others of medicine's activities. Not every physician is capable of addressing local organizations, but every physician can talk to his patients. Full benefit from worthy policies of local, state, or national medical organizations can never be attained unless the individual member does his share in acquainting his patients with these policies. The public is eager for information, and the medical profession must provide it. . . ."

* * *

Trend of the Times—Case Institute of Technology in Cleveland, Ohio, lured five new faculty members last month. Although Case is a straight engineering college, not one of the new professors is an engineer.

The new faculty members will teach humanities and social sciences. Case's new approach to its engineering education problems is being financed in part by the first $30,000 instalment of a five-year grant of $150,000 from the Carnegie Foundation.

Some five years ago, Case's faculty decided students were getting too much slide rule and plumb line training and too little general education. After an 18-month survey on what's wrong with engineers, Case came up with a list of program aims.

Boiled down, the objectives are: to teach students to express themselves well both on paper and on their feet; to increase their knowledge of Western culture; to teach them the responsibilities of citizenship, and to develop reading skills.

* * *

The James F. Lincoln Arc Welding Foundation is sponsoring a $30,000 Mechanical Design Award Program. The program offers 101 awards for papers giving the best descriptions of the design and fabrication of a machine or machine component of any type which is designed for arc welded steel fabrication. First award is $2,000. For details, write A. F. Davis, Secretary, Lincoln Arc Welding Foundation, Cleveland 17, Ohio.

* * *

The engineering profession received an unexpected plug from a Topeka, Kansas, architect recently. In 1935, the Engineers Club of Topeka made a survey of Shawnee County. The result was a 25 year plan which has long since been forgotten.

The architect perused the plan and found it had predicted what would happen in that Midwest city with "amazing" accuracy. He called the matter to the attention of the local paper, *The Topeka Daily Capital*. The whole thing led the architect to muse: "Maybe we should have paid more attention to the engineers."

* * *

A good listener is not only popular—after awhile he learns something. . . . *Georgia Professional Engineer*.

Letters

(Continued from page 3)

If possible I would like to get about 100 reprints of this article. If they are available please mail same to my personal attention at this address. . . .

A. R. WATERS,
Kansas City, Mo.

Dear Editor:

In the October issue of your publication is an article by our Charles F. Kettering, which we would like to reproduce in our Board of Commerce weekly publication, *The Detroiter*.

The purpose of this letter is to seek your permission for its reproduction, giving credit to both Dr. Kettering and THE AMERICAN ENGINEER. . . .

O. L. DORWORTH,
Detroit, Mich.

Dear Editor:

I enjoyed reading the article "An Engineer's Report on the Future" by Dr. Charles F. Kettering in a borrowed copy of your October, 1952 issue. Would it be possible to obtain a reprint or single copy of this issue for future reference?

KENNETH E. HUDDLESTON,
Washington, D. C.

Politico-Engineers . . .

Dear Editor:

Regarding your hero-worship article, emphasizing the qualities of the politico-engineer, prime example, Morris Cooke. In no project conceived by modern man was more short-sightedness observed than in the initial stages of the Rural Electrification Administration. The preponderance of politicians on the payroll when qualified engineers were digging ditches, the complete miscalculation of the potential load still reflected in the small number of 3 phase lines, the marginal construction for the most essential industry in the land, and similar reflections on a professional approach should at least be closely investigated before issuing such articles.

It is not helping the profession to laud these hit, skip and jumpers, when apprenticeship, experience, and everlastingly continuous education in every phase of human activity is needed to keep the wheels of this country rolling.

ELMER N. IBERG, P.E.,
Marion, Ky.

Cleaner Air Week . . .

Dear Editor:

I have just received a copy of the October, 1952, issue of the AMERICAN ENGINEER, which contains an article entitled "Making Our Air Cleaner" appearing on Pages 12 and 14. This magazine reached me through the courtesy of Mr. Ralph C. Mulligan of the Bituminous Coal Institute.

I would like very much to obtain 25 tear sheets of this article, if you have them available. I need them to supplement my committee report to the Board of Directors of the Air Pollution Control Association. If you have extra copies of the magazine available, we would appreciate receiving them instead of the tear sheets, if this would be more convenient to you.

We greatly appreciate the support you have given to the Cleaner Air Week program this year. This is the fourth year for the Cleaner Air Week promotion, which is supported widely by government officials, air pollution control forces, industry, professional societies, civic leaders and service groups. As for example, as of today, we know of Proclamations having been issued by the Governors of 22 states.

Thanks again for your splendid cooperation.

CHARLES N. HOWISON,
National Chairman,
Cleaner Air Week Committee,
Air Pollution Control Assoc.,
Cincinnati, O.

KENNEDY-RIEGGER DRILLING CO., Inc.

Diamond Drill & Core Borings

TEST BORINGS

5418 Post Road — New York City

Telephone KI 9-8458

AEROFIN

CORPORATION

Syracuse — New York

Are Civil Engineers The Only Engineers Who Buy Concrete?

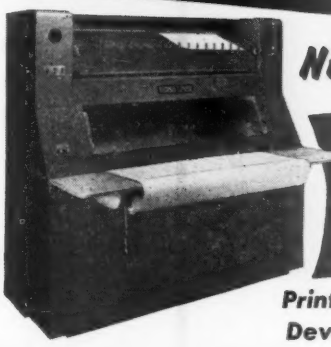
Not at all. A recent survey disclosed that *professional* engineers, representing all branches, *have many fields of business activity.*

Reach registered, professional engineers—leaders who *buy!*

American Engineer

Circulation: 27,000 professionals.

FASTER at lower cost!



NEW "Speedmaster"

MODEL "5"
VERSA-LINER
AMMONIA-TYPE
WHITEPRINTER

Prints up to 14 ft. per min.
Develops at 8 ft. per min.

● *Save from 50% to 80% of blueprinting costs!* Prints and develops black line and colored line whiteprints in volume at low cost! Handles cut sheets or roll stock up to 42" wide in any length. Equipped with 2000 watt high pressure mercury vapor lamp for greater printing speed. Newly devised blower system for coolest contact—protects originals. Feed, delivery and all controls in front, within easy reach. Easy to install and operate. Trouble-free. Simple to clean. Minimum maintenance. 220 V single-phase 60 cycle AC. Priced at $1565.00. *Get full facts now.*

Also other Versa-Liner and Spee-Dee Whiteprinting Outfits for Moist Diazo or Ammonia Dry process from $55.00.

PECK & HARVEY 5627 N. WESTERN AVE. CHICAGO 45, ILLINOIS

Founded in 1937—Over 10,000 Machines in Use

MFRS. OF WHITEPRINT, BLUEPRINT AND PHOTOCOPY EQUIPMENT

American Engineer

NOVEMBER
1952

"There is an engineering approach to (our) problems. The engineer has an objective. He studies and analyzes the materials with which he has to deal. He acquaints himself with the natural forces which he cannot change, which are more powerful than he is, but to which he must adapt himself so that he may make use of them."

—Ralph E. Flanders, P.E., United States Senator from Vermont.

Kenneth E. Trombley,
Editor

A. C. Neff, P.E.,
Chairman, Publications
Committee, NSPE

SPECIAL ARTICLES

The Engineering Approach To Our Problems 9
By Senator Ralph E. Flanders of Vermont. An outstanding legislator, engineer and inventor, writes for professional engineers about standardization and other problems.

MINING THE SEA 13
—An American Engineer Photo Story—

Three Big Questions Facing the Engineering Profession 16
By John Gammell, P. E., Supervisor, Sales Training, Allis-Chalmers Manufacturing Co.

Special Report on Professionalism in Schools 7
Committee Announces Nominees for '53 18
Utilization Report Publicity Kits Released .. 28
Society Review Sent to Members 29
Have You Done Your Part?—An Editorial .. 34

REGULAR FEATURES

Letters to the Editor 3
Professional News Briefs 4
Professional Postscripts 20
With Our Members 22

CCA
Member, Controlled Circulation Audit

Advertising Representative:
J-V Associates,
274 Madison Avenue,
New York 16, N. Y.
Telephone: ORegon 9-0030

The American Engineer is published monthly by the National Society of Professional Engineers, 1121 15th St., N. W., Washington 5, D. C. Entered as Second Class Matter at the Post Office, Washington, D. C., under act of March 3, 1879. Copyright, 1952, by the National Society of Professional Engineers. Not responsible for opinions expressed in signed articles. Subscription Rates: $2 per year in advance to members of NSPE and its Affiliated Societies; $3 per year in advance to non-members in U. S. A. and its possessions, Canada, and Mexico. Foreign, $4 per year. Single copy, 35c.

An *American Engineer* SPECIAL REPORT

Re: *Means Being Used to Develop a Spirit of Professionalism Among Engineering College Faculties and Students*

● It is generally recognized that student days present the best opportunity for indoctrinating the individual with the true concepts of professionalism. Therefore, it is of the utmost importance that engineering schools have worthwhile programs designed to adequately prepare the young man for a well-rounded life as a professional engineer. Cognizant of these facts, NSPE's Educational Committee with Dean N. W. Dougherty of the University of Tennessee as chairman, early in 1952 undertook a survey to find out what was being done among our institutions to develop a spirit of professionalism. One hundred-and-two schools participated in the survey which follows. The survey was directed by Dean George F. Branigan of the University of Arkansas, member of the committee.

● A. Faculty	Yes	No	Blank
1. Are seminars held regularly among the staff members:			
(a) To explain and discuss professional engineering in all its aspects?	(36)	(58)	8
(b) To analyze and improve existing teaching methods?	(63)	(31)	8
If yes, how often? (a) 1/mo 12; 1/qtr 6; 1/sem 8; 1/yr 2; less often 2			6
(b) 1/mo 16; 1/qtr 9; 1/sem 20; 1/yr 3; less often 3			12
2. Are staff members encouraged to attend conferences and to participate actively in the work of:			
(a) Educational and Professional Societies (A.S.E.E., N.S.P.E., etc.)?	(102)	(—)	—
(b) Technical Societies (A.S.M.E., A.S.C.E., A.I.E.E., etc.)?	(100)	(—)	2
(c) Other?	(16)	(2)	84
3. Does the administration:			
(a) Encourage graduate work by staff members?	(101)	(1)	—
(b) Consider graduate degrees as an important factor in the determination of promotions?	(97)	(4)	1
(c) Permit full-time staff members to carry graduate course work?	(92)	(8)	2
4. Are staff members encouraged to conduct some research:			
(a) Through a reduction in the teaching load?	(72)	(15)	15
(b) Through the provision of special funds?	(74)	(15)	13
(c) Other?	(28)	(0)	74
5. Are staff members encouraged to perform some outside industrial or consulting activities (to augment their practical experience)?	(91)	(8)	3
6. Are staff members encouraged to become registered?	(90)	(7)	5
7. Is registration used as one of the factors involved in the determination of promotions?	(32)	(68)	2
8. What other means are used to foster the spirit of professionalism? (24 institutions listed other means.)	(—)	(—)	78
● B. Students			
1. Are students acquainted with the professional aspects of the field early (for example, in freshmen orientation courses)?	(85)	(13)	4
(a) Other means?	(32)	(4)	66
2. Is follow-up work conducted later, providing a gradually unfolding pattern of all aspects of the question (such as the history of examinations for registration, purposes of registration, etc.) in:			
(a) Student branches of technical societies?	(88)	(9)	5
(b) Seminars?	(40)	(22)	40
(c) Other?	(30)	(11)	61

(Please turn the page)

Special Report

(Continued from page 7)

3. Are students encouraged to join and participate in the activities of their technical society student branches (A.S.M.E., A.S.C.E., A.I.E.E., etc.)? ..... (101) (0) 1

4. Are students acquainted with the industrial and other activities carried out by engineers:
   (a) Through plant inspection trips? ..... (101) (1) —
   (b) Through industrial and school films? ..... (95) (2) 5
   (c) Through talks given by practicing engineers? ..... (100) (1) 1
   (d) Other? ..... (18) (1) 83

5. Are students encouraged to prepare for professional registration? ..... (94) (4) 4

6. Are students being exposed to the "project method" wherever possible in order to stimulate conditions encountered in practice? ..... (74) (19) 9

7. What other means are used to foster the spirit of professionalism? (20 institutions listed other means.) ..... (—) (—) 82

8. In your opinion, which three of the above techniques used by your institution have proven most effective ..... (—) (—) 41
   3(32); 4(42); 2(23)

● Means Being Used To Interest High School Students In Engineering As A Profession

1. Is the faculty giving talks emphasizing present and future student needs of the profession to:
   (a) Technical societies (A.S.M.E., A.S.C.E., A.I.E.E., etc.)? ..... (77) (9) 16
   (b) Secondary school educator groups? ..... (79) (15) 8
   (c) Community groups (Lions Club, Kiwanis, Rotary, Y.M.C.A.)? ..... (64) (19) 19
   (d) Others? ..... (21) (6) 75

2. Is the need being communicated to the alumni group:
   (a) Through the alumni magazine? ..... (76) (15) 11
   (b) By special written reports? ..... (23) (30) 49
   (c) Others? ..... (17) (5) 80

3. Are high school students being directly approached by means of:
   (a) Special issues of, or articles in, the engineering college magazine, to be distributed to high schools? ..... (63) (23) 16
   (b) Movies illustrating engineering practice to be loaned to high schools? ..... (14) (60) 28
   (c) Radio or television broadcasts directed toward high school students or their parents? ..... (42) (41) 19
   (d) Aid in the establishment of committees in local engineering groups or chapters (A.S.M.E., Engineering Clubs, etc.) to cooperate with high school principals and counselors in guidance or advisory work? ..... (64) (23) 15
   (e) Talks by past or present student leaders, faculty members, or local engineers at high school career days? ..... (90) (7) 5
   (f) Use of essay or other interest-providing contests (for example, "Why Engineering Is A Desirable Profession," etc.)? ..... (6) (66) 30
   (g) Foster the use by high school principals or counselors of plant visits or films (from the American Council on Education or other sources) to develop familiarity with engineering? ..... (15) (52) 35
   (h) Use of widely publicized "Engineers' Day" to promote interest? ..... (77) (13) 12
   (i) Support for the development by the high schools of a library of helpful books and pamphlets for engineering guidance? ..... (24) (48) 30
   (j) Use of continuous notices for high school bulletin boards (from government and other sources) to present the latest available information on employment outlooks, interesting jobs in the field, etc.)? ..... (20) (52) 30
   (k) Others? ..... (19) (4) 79

4. In your opinion, which three of the above techniques used by your institution have proven most effective? ..... (—) (—) 38
   3e(40); 3h(31); 3d(18); 3a(17)

Production at Dravo Corporation's Pittsburgh Plant of the Army's new cannon that can fire atomic missiles—This shows the cradle (for the barrel) being assembled to the carriage. Senator Flanders has fought for standardization between nations of such defense items.

The Engineering Approach To Our Problems

By RALPH E. FLANDERS, P.E.,
United States Senator From Vermont

A Distinguished Engineer and Legislator, Senator Flanders Is a Successful Inventor, Past President of the American Society of Mechanical Engineers, and Leader in the United States Senate. His Outstanding Work is Exemplified by His Efforts in the Field of Standardization.

ENGINEERS have done and can do much constructive work for their communities, states and for the nation as a whole—they are admirably equipped to do so. For this is an engineered age. It is obvious to all that the changes engineering has brought to mankind in the last century have been prodigious.

The engineer, with his technical skill, can often bring an expert opinion to bear on matters which are of enormous public importance which no one else could bring. Indeed, in whatever contributions I may have made in my career, I have found engineering training enormously helpful. It is a pleasure to accept the invitation of the editor of the AMERICAN ENGINEER to set forth my views on this subject.

The first thing we must do is to define public service. It is, of course, obvious that we are not interested in political parties and the normal procedures by which politicians seek to bring success to the party to which they belong. This is a proper activity, but we are thinking of public service in a more fundamental sense, that of making a contribution to our government at its various levels, local, state and national.

I believe that it is very possible for engineers to make substantial contributions to our national public life without ever getting involved in politics or ever holding an elective or appointive public office of any kind. Let's take a broad look at engineering itself to see how this can be done.

Engineering has produced a dependence of everyone on everybody else for keeping our industrial society going. This is perhaps its most important and most dangerous characteristic in our society.

To see what this really means, let's look at what engineering has done to our traditional ways of making things:

With the beginning of the machine age when the whole textile industry was transferred to factories, thousands of men and women left the home to make with greater ease and enormously increased efficiency, the textiles which had

The author says that in the early years of World War II, lack of standardization of military equipment cost unnecessary billions of dollars, and an unknown, but undoubtedly huge number of casualties.

formerly been made at home. Pretty nearly everything else except the food prepared and cooked at home followed the textiles.

MANY things for family use, as in my own youth, were made by village industries. But they, in turn, faded out of the picture until everything except the home-cooked food was made outside the home. These things were sold in stores and bought for the family by the breadwinner out of the sale of the agricultural products he had raised or from the wages he had earned in his fragmentary part in an industrial civilization.

This has now become a complete interdependence. Every one of us is helpless without the assistance of all the rest of us. We cannot live without each other. A failure of any particular group to perform its functions brings hardship, distress, and even danger to the other groups of the industrial community.

The quantitative result of this has been that, in the New England area, for example, nearly thirteen million people live in an area whose inhabitants a few hundred years ago were, at most, tens of thousands of Indians. Both the Indians and we live in insecurity. Their insecurity resulted from natural variations in game and fish supply, from crop abundance or crop failure, and from the necessity to protect their hunting grounds by force against hostile tribes. Our insecurity is built into our industrial structure wherein the tremendous engineering advances of the recent generations have made it necessary that everyone play his part in supporting the whole.

The free American is no longer free economically. He is bound to all his fellows, through the requirements of life in a society which engineering has constructed for us.

The benefits of living in this society are enormous. Engineers have reduced the size of the world to a thousandth of what it was two centuries ago when size is measured in the speed of circumnavigatory travel. There are no longer any unknown or remote regions. The simple political and economic problems of a century ago have been intensified, magnified, and rendered well-nigh insoluble by their very complexity. This is what engineering has done in the one field of communication and transportation.

In the field of production, engineering has enabled a few hours' work to give us what would have required weeks of application one hundred fifty years ago. It likewise gives us in return for a few hours and a few days or weeks of work articles which were not in existence a hundred years ago and which would have no existence today were it not for the art of engineering working on the materials furnished by science. The electric refrigerator, the television set, the automobile, and the airplane are examples.

We see that engineering has resulted in posing to us certain serious problems. It has squeezed the world together by instantaneous communication and high-speed transportation. What happens in Tibet is of importance to Chicago, even though Chicago at the moment may be serenely oblivious to the fact. The dangers from this intimacy between us and the far corners of the globe are more than the dangers of armed conquest. They are the more material dangers of effects on our economy and the physical well-being of our people.

We have also seen that an industrial society based on engineering makes possible a population greater by more than a thousandfold in a given area than can be supported by a non-engineering society. Yet at the same time, we have seen that this society is unstable. It depends on such a measure of cooperation as would have seemed impossible of attainment a century ago. We are seeing that cooperation threatened, yet not destroyed. We are concerned that it be not destroyed but be expanded, strengthened, and made more permanent.

Engineering, then, makes problems. What contribution can it make towards their solution?

THERE is an engineering approach to these problems. The engineer has an objective. He studies and analyzes the materials with which he has to deal. He acquaints himself with the natural forces which he cannot change, which are more powerful than he is but to which he must adapt himself so that he may make use of them.

The proper objective of our politics is not world power. It is not power for its own sake, in a national area or in a larger scale as was the case with the Nazi and Fascist regimes. Our objective is material well-being, but it goes beyond that. It includes the attainment of the higher satisfactions of working successfully with each other and of having available to everyone the highest resources of the treasure of the past and of the hopes of the future. This national well-being cannot be attained for ourselves alone, for we are too closely tied in to the rest of the world. But neither can it be attained by dropping ourselves to the average level to be found the world over. The objective we seek is not a universal level but such an increase in cooperation and production, material and spiritual, as will form a background for our own development.

Early in this article, I mentioned that the special training and the understanding of natural processes which engineers have, enables them to make unique contributions to our way of life. I said that it makes them more likely to appreciate the significance of things which would not occur to laymen — important things, which without a knowledge of, our lives can become very complicated and unpleasant in unexpected ways.

The matter of standardization, for example, is something that not many people besides engineers are likely to appreciate the significance of. At least until the matter has been forceably and unpleasantly brought to their attention. And yet, to me, the standardization of products and services in America constitutes one of our greatest contributions to the progress of the world. Each of us has benefited in innumerable ways because of it. And yet, there still remains much to be done. It is a field in which the nation's professional engineers can render much service.

For example, during the World War II, in the early years of the fighting, lack of standardization of military items between America and her allies cost unnecessary billions of dollars and an unknown, but undoubtedly huge number of casualties.

British airplane parts could not be fitted into American planes. Ammunition from our rifles would not fit theirs. Had a minimum set of uniform standards been worked out between the allies, Europe might have been better able to hold out against Hitler's hordes in 1940. As a single instance—some 400,000 Belgian troops were forced to surrender in the spring of that year because British bullets would not fit into their empty guns. At El Alemain, the lack of interchangeability of the parts of British radios and other tank equipment was a contributing cause of that nation's retreat.

I would like to talk about standardization as a medium of public service because it deeply interests me and it is a field to which I have given a great deal of attention over a period of many years. It is a good example of many areas in which the professional engineer can render great public service.

WHETHER or not most Americans appreciate standardization, it is a fundamental characteristic of our economic system. It got us where we are today. But we have cashed in on only a fraction of what standards can give us in almost any field.

For the traveler who is going from the nation's capital to the great Golden State of California, a dramatic example of the good standardization can bring is afforded. The traveler must journey over the lines of four great railroad systems. But there is no confusion and no delay. No change from one car to another is necessary. The rails of each of the four lines are exactly the same 56½ inches apart and the cars of each line automatically brake and couple with each other.

The contrast with modes of travel in other areas of the world—particularly Europe—is startling. Great economies of time, effort and money are effected by our system of standardization.

To me it is a great triumph of our engineered society that the same electrical appliance can be plugged into a socket in Springfield, Vermont, and Springfield, Illinois, and still work correctly. The size 16 sweater that was made in Massachusetts will fit the person who grew to size in Raleigh or Reno. In Los Angeles we can buy an auto tire that was made in Akron. It will fit the wheel made in Pittsburgh, of a car assembled in Detroit and sold in Boston.

To the American consumer, this simplification and workable interchangeability of parts has given lower prices and better quality, more safety, greater availability, prompter exchange and repair service and many other advantages.

One of the least standardized areas of our economy, house construction, shows what remains to be done in the adoption of engineering standards. I am not proposing uniform rows of identical houses. Standardization is an engineering technique and has nothing to do with unaesthetic uniformity.

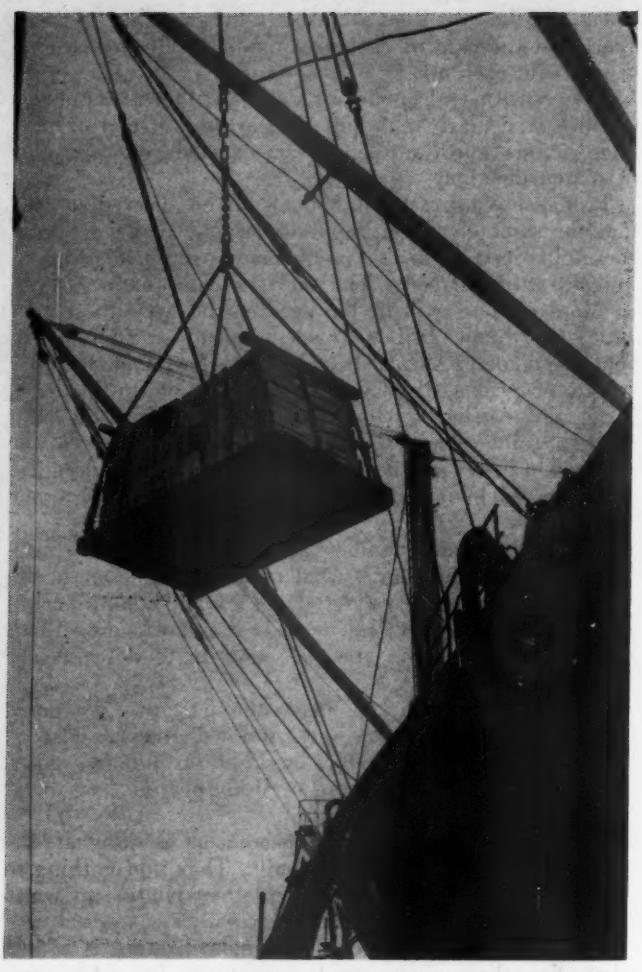
A glance at a sash and door catalogue, with its scores of bastard sizes of doors and windows, gives an idea of how many millions of dollars might be saved on an industry-wide basis by a program of simplification and workable interchangeability.

These odd sizes represent waste except as necessary replacements in houses already built. They add nothing to the appearance of the house and they clutter up warehouses and cost everyone money.

Yes, there's little doubt that standardization is a field that offers the engineer ample opportunity for public service. And it is my considered opinion it is a field where voluntary and cooperative work on the part of private industry and engineers working on behalf of private industry would do well to concentrate a good deal of effort. In addition to the bonus of increased efficiency that all Americans receive on such work, it is necessary for private enterprise to be active and effective in this field to forestall the appropriation of the field by government planners.

There are a great many persons who feel that the gov-

Senator Flanders, left, and his associates celebrate the completion of the 1000th Jones & Lamson automatic thread grinder. The Senator was Chairman of the Board of Jones & Lamson before going to Washington in 1946.



ernment should enter the field of standardization and set down standards by decree. I am opposed to government controls in this field for a simple reason. No government planner knows enough to write the standards for American industry. Even if he and his advisers were as wise as Jupiter, he would still stand helpless before economic forces which are too powerful, delicate and complex for individual control.

Now, let's turn for a moment and conclude this article with reference to a very interesting subject—the "engineering approach" to government. Much has been written and said about applying engineering methods—methods of logic and factualism—to our governmental operations instead of methods of political expediency which too often seem to dictate our policies on all levels of government.

Of course, there are a great many different approaches, each labeled the "engineering approach." One, in particular, has many adherents, and it is undoubtedly true that there is a great deal of value that could be gained by applying it to our national problems.

This engineering approach to the social field requires that men should be treated as materials are treated. Fundamentally it appears to be the approach of that group of engineers who called themselves "Technocrats" in the 1930's.

Now to a certain extent this approach is a proper one. It is essential that we learn how people act under certain conditions. While of the millions of people whose actions are being analyzed statistically, each may determine his own problems and his own decisions differently; yet, taking the millions as a whole, certain patterns emerge which can be relied on to a very important extent.

Here statistical analysis is in a sense the equivalent of mathematical, physical, and chemical analysis of materials and movements in the engineering field. We cannot proceed with the preserving of a stable and productive society without making these analyses. They are useful. They are more than that; they are essential. Yet since we are dealing with people and not materials, we have to recognize that in all places and under all conditions the statistical analyses may not remain valid.

The materials with which we have to work are the people of our country and the people of the world. To some extent these materials can be studied objectively. They can be analyzed statistically. They can be observed and considered in non-mathematical ways by sympathetic and interested students.

The forces with which we have to reckon are the least understood and the least applied of all the factors in this engineering approach to human welfare. These forces are finally to be found in the spiritual realm. They are the powers which govern our destinies. The most concise statement of them is to be found in the words of Jesus when he said, "Thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy mind. This is the first Commandment. And the second is like unto it, thou shalt love thy neighbor as thyself."—***End.***

About the Author . . .

Senator Ralph E. Flanders, P.E., (R., Vermont) couples a fine record of public service with an unparalleled background of industrial experience. Born in Barnet, Vermont, he spent most of his early years in farm surroundings, but at the end of his school days he set out diligently to learn the machinist's trade. From that beginning, he ventured successfully into many phases of engineering work, supplementing his practical experience with intensive study that enabled him to speak with authority in the theoretical and technical field. He did a five-year stint as Associate Editor of *Machinery*, a leading New York technical journal, but found greater satisfaction for his ambitions in a return to the actual engineering field, first with the Fellows Gear Shaper Company and later with the Jones and Lamson Machine Company, both in Springfield, Vermont. He served as president of the latter firm from 1939 until, in 1944, he accepted the presidency of the Federal Reserve Bank of Boston. He has been a president of the American Society of Mechanical Engineers.

Sen. Flanders

On November 1, 1946, he was appointed to the Senate to fill the unexpired term of Warren R. Austin, and he was elected in the same month for a full term beginning January 3, 1947. In the 82nd Congress Senator Flanders has been serving with the Committee on Armed Services, the Committee on Finance, and the Joint Committee on the President's Economic Report.

At the end of World War II, he joined with Paul Hoffman and other forward-looking businessmen in setting up the Committee for Economic Development whose efforts contributed materially to the solution of many post-war changeover problems. Combining many dynamic ideas with practical experience, the Senator can indeed speak with authority in both the industrial and legislative fields.

-An American Engineer Photo Story-

At right: Magnesium evaporators in action at Dow's Freeport, Texas, plant. Engineers and chemists, working together, have created a great new industry which has provided America and the world with a wonderful new metal.

MINING THE SEA

By DAVID A. HELLER

The Oceans of the World Have a Fantastic Store of Mineral Wealth — 50 Quadrillion Tons. With the Ever-Increasing Population of the World Requiring More and More Raw Material, Engineering Efforts to Tap the Wealth of the Sea May Point the Way to a New Era in Man's Mastery of Nature.

EVER since the Dawn of History when the caveman first discovered that evaporated sea water contained salt, essential to the maintenance of life, men have sought to tap the mineral wealth of the world's oceans.

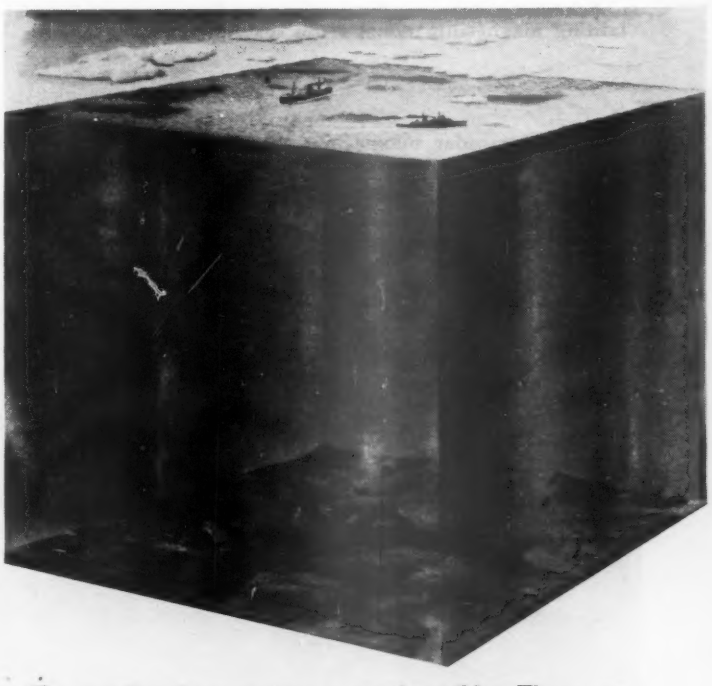
There is little doubt that the ocean is the world's greatest treasure house of minerals. Reliable estimates place the amount of dissolved salts in a single cubic mile of ocean water at 166 million tons. The same estimates place the total in the world's oceans at 50 quadrillion tons—give or take a few billion tons one way or another.

Naturally, with such attractive prizes as gold, (estimates as to the gold content of the sea surmise that there is enough of the precious yellow stuff to make every human being on earth a millionaire), magnesium, iodine, bromine and other minerals have long led man to speculate on the wealth to be won from the ocean.

Obtaining salt from sea water is described in ancient Chinese writings penned about 2,200 B.C. The ancient Greeks, Romans and Egyptians also were familiar with obtaining salt by evaporating sea water. Mr. C. M. Shigley of the Dow Chemical Company's Freeport, Texas, plant which specializes in "mining the sea" to obtain bromine and magnesium, reports that the production of crude soda and potash from the ashes of seaweeds was accomplished in Scotland as early as 1720.

For many centuries, solar evaporation was the key to almost every attempt to recover minerals from the sea. Slow, cumbersome and costly, solar evaporation met with only limited success.

Probably the most interesting attempt to mine the sea prior to the successful operations of a venture at Kure



The supply of magnesium is inexhaustible. There are 12 billion pounds of the metal in a cubic mile of sea water.

Beach, North Carolina, was conducted by the German government.

In the days following World War I, that nation was girding itself against disastrous inflation and heavy war debts. Determined to wrest a sizable amount of gold from the sea, the German government outfitted Chemist Fritz Haber with a ship, *The Meteor,* equipped with a filtration plant and an elaborate chemical laboratory. Although Haber knew that the average cubic mile of sea water contains about $93,000,000 in gold and about nine million dollars worth of silver, he could find no practical way of processing it out, despite strenuous efforts made during the years 1924-28 while crossing and recrossing the Atlantic in *The Meteor.*

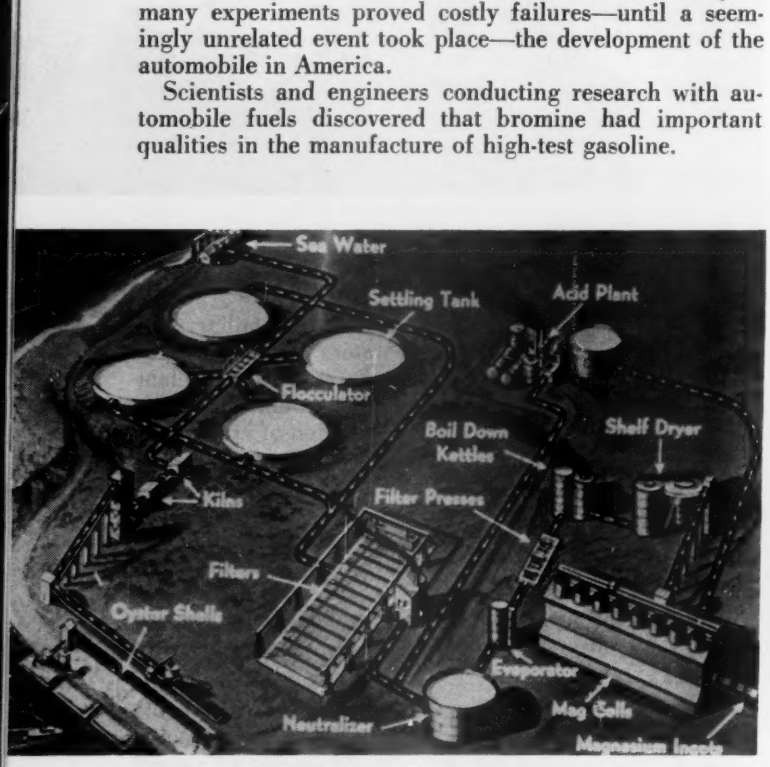
Efforts to mine the sea inched forward cautiously — many experiments proved costly failures—until a seemingly unrelated event took place—the development of the automobile in America.

Scientists and engineers conducting research with automobile fuels discovered that bromine had important qualities in the manufacture of high-test gasoline.

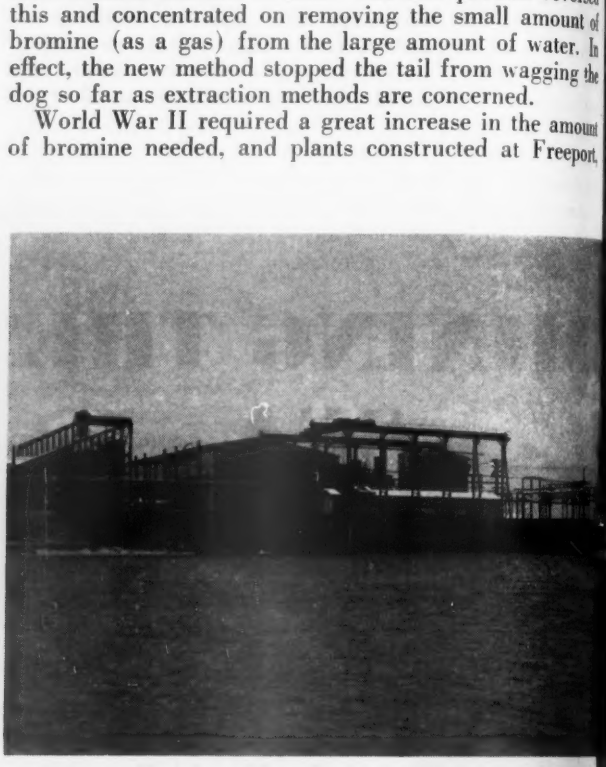
Obviously, the high-test, ethyl gasoline was superior to the fuels then available to motorists. Why not manufacture it in quantity?

One serious obstacle, seemingly insurmountable, stood in the way. The sea had a monopoly on bromine. An incredible 99% of the world's supply is concentrated in the ocean. At first bromine was obtained from heavily concentrated brines left in subterranean pools. This supply proved grossly inadequate. In 1933, the Dow Chemical Company established the first plant to extract bromine directly from the sea. Located at Kure Beach, North Carolina, the plant worked on a completely different process than earlier efforts. Heretofore, engineers had concentrated on removing huge amounts of water (as vapor) from a small amount of salts. The new process reversed this and concentrated on removing the small amount of bromine (as a gas) from the large amount of water. In effect, the new method stopped the tail from wagging the dog so far as extraction methods are concerned.

World War II required a great increase in the amount of bromine needed, and plants constructed at Freeport,



Schematic drawing illustrating the Dow process for obtaining magnesium metal from sea water.



Levee and sea water intake at Freeport, Texas plant of The Dow Chemical Co. where magnesium is produced.

The granular magnesium chloride "cell feed" is conducted by the overhead conveyors and fed from the roof to each of the magnesium cells in these long buildings. Ample ventilation is provided through the stacks in the roof.

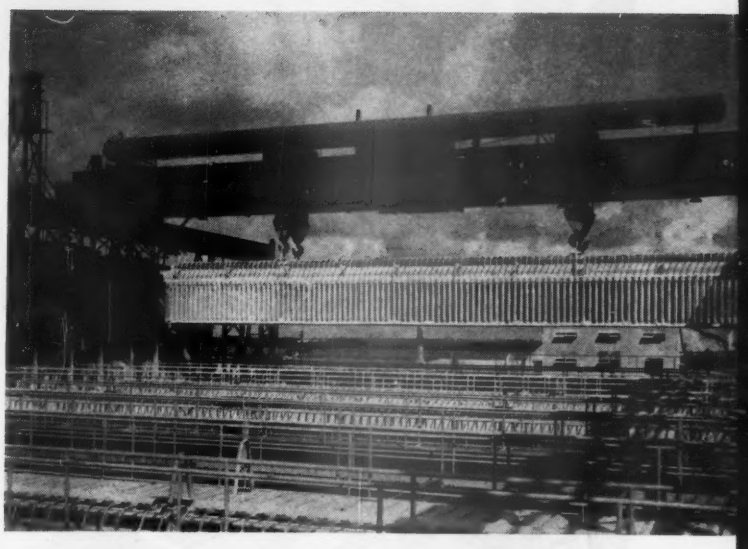
Texas, added 60 million tons of capacity to American production. Modern methods of making liquid bromine produce a product slightly more pure than a celebrated brand of soap—99.7%.

A milestone in the process of mining the sea took place in 1941 when the first magnesium metal from Gulf of Mexico water took place at Freeport. Revised methods of precipitating magnesium hydroxide from sea water bitterns made that method of production of magnesium—one of today's "wonder metals" economically feasible. There are about four million tons of magnesium in each cubic mile of sea water.

Engineers will recall that magnesium is the lightest commercial structural metal, only one-fourth as heavy as iron and two-thirds as heavy as aluminum. With high strength in alloys with other metals, and good corrosion resistance, magnesium finds scores of uses in our industrial world. Today, nearly 100% of America's virgin magnesium and four-fifths of our nation's bromine come directly from sea water—a significant indication of things to come when the engineering problems involved in extracting minute particles of other minerals from the ocean have been overcome.

Another important element which gives promise of some day coming from the sea is iodine. While iodine has not yet been mined directly from the sea, the next best thing has already taken place. It has been produced from long-buried inland seas where the concentration is far heavier than in the ocean. At one time, all of the world's commercial iodine was produced from seaweeds burned to ashes. The Japanese held virtually a monopoly on this trade. Then brine deposits were discovered in Chile, and later, in oil-bearing rocks in California.

One of the advantages of the free enterprise system was demonstrated in the Golden State in the production of iodine from brine. Oil producers were pumping ten barrels of iodine-rich brine for each barrel of oil. Disposal of the brine was a serious problem, for it polluted the California coastal waters. A chemical engineering company solved the problem neatly for all concerned by taking over the brine, which was regarded as a nuisance, and developing a process which literally blows iodine out of the brine after treatment with acid and chlorine. Thus the price of iodine has dropped drastically, the brine can be discharged without being a hazard, and everybody's happy.—***End.***



Precipitated magnesium hydrate is filtered out by means of these Moore filters in Dow's process for extracting magnesium from sea water.

Shelf driers at the Texas plant.

Line of electrolytic cells in which magnesium is separated from magnesium chloride.

Another industrial marvel but its design was all in a day's work for the engineer. A 236,000-gallon settling cone at Inland Steel's coal preparation plant.

Salaries, Utilization & Sales Engineering . . .

Three Big Questions Facing the Profession

JOHN GAMMELL, P.E.,
Supervisor, Sales Training,
Allis-Chalmers Mfg. Co.,
Member, Wisconsin SPE and NSPE

THE Philadelphia Engineering Club has a motto originating with George Washington which says: "Let us raise the standard to which the wise and just may repair." The main business of the engineering profession should certainly be to raise the standards, both educational and ethical as well as those material standards associated with numbers. That is, they should have a large active organization of substantially well-paid, highly-trained people.

When I think of numbers, I am sometimes reminded of a story concerning a denizen of the hills of Tennessee who had been requested to appear in traffic court. The judge said, "Can you write?" He replied, "No." The judge added, "Can you read?" "Well, I kin read figures, but not words." "How's that?" said the judge. "Well, take these signs along the road when I goes somewheres. I kin read 'how fur' but not 'where to'."

With regard to material matters such as salary, we may be in about the same position as this individual. The purpose of professional engineers can never be one of material benefits, though these can be important barometers of their success. Nor, should it be a sort of super union like some feel the A.M.A. has become, nor yet be a sanctuary for a kind of intellectual snobbery.

I would like to discuss, then, three areas of which it seems to me the professional engineers do not have too clear an understanding. These are (1) higher salaries for engineers, (2) better utilization of engineers and (3) the place of the sales engineer in the profession.

The following discussion of them may serve to illustrate my point of view on the functions of professional engineers. An excellent contribution can be made toward raising the standard to which the wise and just may repair on all three of these broad subjects.

Before proceeding further, in order that you may understand that anything I say comes from an atmosphere which has a real interest in the work of the professional engineers, I want you to know that hanging on one of the walls in the office of our vice-president is a certificate indicating registration as a professional engineer. He has a nice, paneled office of which he is very proud. His secretary is even prouder of this office, and, believe me, it was with some difficulty that he got her to allow him to hang this evidence of the profession on the wall. It is the only thing of this kind that appears.

As further evidence of the interest of our Company in the problems of the professional engineer, let me quote several paragraphs from our Sales Organization Circular Letter No. 987, dated March 6, 1946 on the subject, "Calling Cards—Titles."

"Several states have passed laws requiring registration of all individuals using the title 'Engineer'.

"These laws, in general prohibit us from using the title 'Sales Engineer' or 'Field Engineer'. Likewise, any other title tending to convey the impression that Company representatives are acting as professional engineers is also prohibited by law.

"Under the circumstances, I wish to revoke my letter

of January 4, 1946, changing the title of 'Field Engineer' to 'Sales Engineer'.

(Skipping the rest of this paragraph; also the first part of the following paragraph and continuing)

"We intend to use the title 'Engineer' for all technically-trained individuals who are acting as Engineers or Specialists who can qualify under State and Local laws. All individuals desiring to maintain the title 'Sales Engineer', 'Mining Engineer', etc. should proceed to qualify and after proper certification, this office should be notified."

To get back to the three areas in which professional engineering organizations can do some worthwhile work I would like to start out first with the business of greater remuneration for engineers. It is an obviously important topic. It is of added importance now when we are trying to encourage all qualified young men to go into the profession. Whether or not this is the vital cause of our present shortage, it is certainly a contributing one in a free enterprise system such as ours.

To quote from a paper presented recently by William F. Thompson at a meeting of the Engineers Council for Professional Development.

"The shortage of engineers becomes greater with each passing month and now has reached a stage much more critical to the defense effort of the nation than is the shortage of carbon steel, structural steel, alloy steel, stainless steel, copper base alloys and aluminum. With the increased spending for armaments which will occur due to recent Acts of Congress we can anticipate an engineering manpower shortage the severity of which will have no previous equal in any nation and which may easily result in a perceptible change in our existing social order."

Some people seem to think that the shortage will make engineers valuable much in the way that many useless art objects become valuable simply because there aren't many of them. I would like to feel that engineers want to be valuable like an industrial diamond, because they are a useful, industrial tool and while they are scarce the value is still real.

It has been reported to me that about a year ago in New York at a meeting of the A.S.M.E., a prominent industrialist and a prominent utility executive were discussing the matter of increased remuneration for engineers. They came up with the simple idea that, perhaps, if engineers were worth more they would get more. The problem, then, is to make them worth more.

AMERICAN businessmen are constantly confronted with pressure groups who feel that there is some basic quality within their group which entitles them to a larger share of the proceeds. I think that businessmen have done a good job of "dividing up the pie." However, they would like to have a bigger "pie" to divide and engineers, perhaps, more than any other group can help them get it.

The National Association of Manufacturers with cautious conservatism, has recently inaugurated a program which is easy to agree with. It is a program toward better training of the people whom industry uses. It fits in well with what I am trying to say. Let me give you seven of the suggested points:

1. Industry can provide, without cost, worthwhile classroom material and visual aids which give factual information in simple language, and also can cooperate by:
2. Setting up additional fellowships and grants for research and scholarships for undergraduate and graduate students.
3. Setting up more tuition remission plans for workers who wish to pursue vocational, technical or general studies in regular classes or through correspondence courses.
4. Participating in apprentice training programs.
5. Participating in work-study training programs on both secondary and college levels.
6. Giving intelligent assistance when plant tours are desired by students or teachers.
7. Furnishing speakers both for meetings of students and teachers in all levels of education.

To get more, the answer is to be worth more and the profession should help toward that end. There should be a strong attempt to prevent any leveling influence. The idea of remuneration on the basis of a sound merit system should always be encouraged.

My second point here is better utilization of engineers. This is timely. There seems to be a widespread belief that proper utilization of engineers means they are to be used strictly in technical jobs. To me, this makes an engineer something akin to a calculating machine. The fact that a man is skilled in the use of calculus, thermodynamics and the higher branches of physics, and so forth, is no indication whatever that he is a professional man in the true sense.

We have all heard variations of the story about the chap who graduated from college with honors and got a job, temporarily, in a department of a large company drawing up some particular kinds of curves. Being a very capable man, technically, he became skilled in drawing these curves. So much so, that he was indispensable and twenty years later was still calculating curves.

Contrasting with this, is the story of the fellow who didn't do so well in school and wasn't too good in drawing curves with the net result that he moved from department to department because he wasn't quite good enough as a machine to be attractive to any of the departments. Eventually, he had a broad, solid understanding of the business and became president.

IT seems obvious that the fact that a man is using calculus

(*Continued on page* 27)

The Author . . .

Mr. Gammell

John Gammell, P.E., supervisor of sales training at the Allis-Chalmers Manufacturing Company, received his bachelor of science and electrical engineering degrees at the University of Washington in 1928. He came directly to Allis-Chalmers in the same year and has worked here continuously except for about three years during World War II when he was with the War Production Board in Washington as Chief of its Electrical Equipment Branch.

Prior to entering his present position with the company, he had been a graduate training student and a sales engineer.

He has written articles and given many speeches concerning the training of graduate engineers.

He is a registered professional engineer, an associate of the American Society of Mechanical Engineers, and a member of the American Society of Engineering Education, American Institute of Electrical Engineers and of the Wisconsin Society of Professional Engineers, NSPE.

(Story on Page 29)

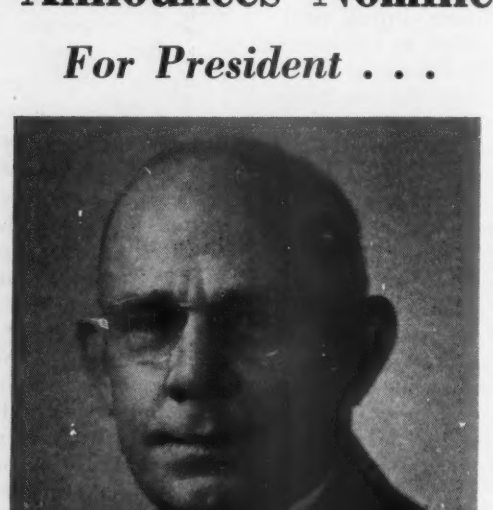
Committee Announces Nominees for '53

For President . . .

T. CARR FORREST, JR., is a native Texan, born at Forreston, in Ellis County. He was educated in the schools of Waxahachie and began his college education at Trinity University. After a second year in college at Texas A & M, he went into the Army in World War I.

He began his own private practice as an engineer in 1921 and has maintained an engineering office continuously since that time.

Flood control occupied most of his energies for the first six of those years—years of pioneering when he was virtually the only engineer in Texas engaged in this work. He has since continued his interest in flood control work.



T. Carr Forrest, Jr.

His experience and service has broadened through the years to include all types of municipal, reclamation, drainage, irrigation and water supply treatment, sanitation engineering practices, and outstanding work in the field of airport development, and industrial planning. During World War II, he extended his practice to include the preparation of plans and supervision of construction of cantonments, airports, and water treating plants for the Armed Forces. Among others were included the 17 million dollar development of Camp Howze at Gainesville and the 23 million dollar development of Camp Maxey at Paris.

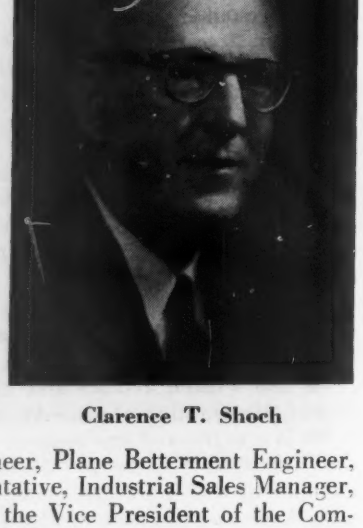
His firm of Forrest and Cotton has been retained as Consulting Engineer on the planning of a $35,000,000.00 low-rent housing project in West Dallas, a suburb near the City of Dallas.

Mr. Forrest long has taken a leading role in pushing the development of engineering as a profession dedicated to community service. In addition to being a member of the National Society of Professional Engineers, he is a member of the American Society of Civil Engineers; American Institute of Consulting Engineers; Society of American Military Engineers; American Water Works Association; Dallas Technical Club; Dallas Engineers Club; Dallas Chamber of Commerce; Greater Dallas Planning Association; Tau Beta Pi.

He has served in the capacity of President of the Dallas Technical Club; The Dallas Post, Society of American Military Engineers; The Dallas Branch, Texas Section, American Society of Civil Engineers; Vice-President and President of the Texas Section, ASCE. For the past five years he has been the Director from Texas in the National Society of Professional Engineers, and at the present time he is serving as Vice-President of the National Society of Professional Engineers from the Southwestern area of the United States.

The Vice Presidents . . .

CLARENCE T. SHOCH, who has received the nomination for Vice President of the Northeastern Area for a second term, is a graduate of the Drexel Institute of Technology, having received his B.S. in Electrical Engineering in 1924. He is also a member of Tau Beta Pi.



Clarence T. Shoch

Employed July 7, 1924 by the Pennsylvania Power & Light Company as Instrument man, later he became successively Test Engineer, Field Engineer, Boiler-Room Engineer, Plane Betterment Engineer, Industrial Sales Representative, Industrial Sales Manager, and is now Assistant to the Vice President of the Commercial Section.

Mr. Shoch obtained his Professional Engineers' license in the State of Pennsylvania on July 22, 1931, and in 1937, became affiliated with the Lehigh Valley Chapter of the Pennsylvania Society of Professional Engineers and the National Society of Professional Engineers, and he has been prominent in the professional field since that time.

His professional society work has included President and State Director, Lehigh Valley Chapter, Pennsylvania Society of Professional Engineers; President, Pennsylvania Society of Professional Engineers; Director and now Vice President, Northeastern Area, and Legislative Committee Chairman, National Society of Professional Engineers.

Mr. Shoch's membership and offices in other associated activities include American Institute of Electrical Engineers, Engineers Club of Philadelphia, Engineers Club of the Lehigh Valley (Manager), Edison Electric Institute, Pennsylvania Electric Association, Interstate Power Club of New York (Past President), Industrial Electrification Council (Charter Committee) and the Allentown Chamber of Commerce. Others include civic groups, particularly Boy Scouts of America. He is a member of Asbury Methodist Church and Lehigh Consistory, and his hobby is sailing.

EDWIN WILBUR SEEGER, born in Bucyrus, Ohio in 1892, again has been nominated for Vice President of the Central Area. He attended Ohio State University, and was graduated with the degree of M.E. in 1913. His college fraternities include Eta Kappa Nu, Triangle and Sigma Xi.

Edwin Wilbur Seeger

Since his graduation from college, Mr. Seeger has been associated with Cutler-Hammer, Incorporated. In 1928 he became Assistant Chief Engineer and in 1938 was made Chief Engineer, and became Manager of Development in 1939. In 1945 he assumed the post he holds today, Vice President in Charge of Development and Assistant Secretary.

Seeger has received approximately 100 patents on electro-magnetic devices and control systems, and his work "Design of Electro-Magnets & Induction Coils" was published by the American School of Correspondence in 1920. He has also contributed editorially to several magazines.

His organizational activities include: Fellow A.I.E.E., Chairman, Milwaukee Section, 1929-1930; Vice President A.I.E.E. District No. 5, 1948-1950. His offices in the Wisconsin Society of Professional Engineers include: 2nd Vice President, 1944; 1st Vice President, 1945; President, 1946; National Director, 1947-1951. He received the Distinguished Service Citation from the University of Wisconsin in 1951.

CHRISTOPHER Y. THOMAS, nominee for a second year as Vice President of the North-central Area, was born in Roanoke, Virginia, in 1900. He received his education at Purdue University, having received his B.S. degree in 1921 and his M.E. in 1926.

Christopher Y. Thomas

Upon his graduation from college, he became an apprentice instructor with the Atchison, Topeka and Santa Fe Railroad for three years, and then became supervisor of apprentices with the K. C. S. Railroad. In 1928 and 1929 he was Chief Locomotive Inspector for this company, and then served as Mechanical Engineer with the Pittsburg & Midway Coal Mining Company from 1929 until 1936. He became Chief Engineer for the latter company in 1936 and retained this position until 1941. At that time he became General Manager for the Military Chemical Works (predecessor of the Spencer Chemical Company). In 1946 he became Vice President of the Spencer Chemical Company, a position which he still holds. He is also a director of the Spencer Company and the Mineral Products Company.

Among the offices he has held are: President, Pittsburg Chamber of Commerce, 1942; Chairman, Kansas Engineering Council, 1947-51; Director, Kansas State College Research Foundation; Trustee, First Methodist Church.

He is a member of the A.S.M.E., American Society Testing Materials; American Institute of Mining Engineers; N.S.P.E., Kansas Society of Professional Engineers, and the Kansas Engineering Society.

ORLAND C. MAYER, who has been nominated for the Vice Presidency of the Western Area, was born at Mora, Minnesota in 1904. He received his engineering education from the University of Idaho, graduating with a B.S. in Electrical Engineering. He is presently Director of Industrial Development in charge of Industrial Engineering Work for the Idaho Power Company, Boise, Idaho. Mr. Mayer is a Past Vice President of the Western Region, having completed the unexpired term of Mr. William Wagner, in 1949.

Orland C. Mayer

His offices have included: Past Chairman Extension Committee, NSPE; Past President Idaho Society of Professional Engineers. He is National Director of the State of Idaho.

His organizational activities include: Member, Idaho State Board of Engineering Examiners; Consultant, Training within Industry, World War II; Chamber of Commerce; Elks; Mason; Shriner; and Chairman, Boise City Recreation Commission.

ALFRED J. RYAN, nominated for Vice President of the Southwestern Area was born at Denver, Colorado in 1908. He graduated from the University of Colorado in 1933 with a degree of Bachelor of Science. Civil Engineering (Special Honors). He received a degree in Civil Engineering from the University of Colorado in 1937. His fraternities include: Tau Beta Pi, Chi Epsilon, and the Euclidean Club.

Alfred J. Ryan

He was a National Director from 1950-51; Director of the Professional Engineers of Colorado in 1948 and President in 1940-50.

Mr. Ryan is a member of the Rotary Club, Aviation Club of Denver, American Water Works Association.

(*Continued on page* 29)

Welcome back to another Professional Postscripts feature. From the many contributions received by this department, it is apparent that engineers *are* interested in a variety of subjects and know how to *write* about them. Our first "writing guest" this month is Engineer H. G. Thuesen, Head of the School of Industrial Engineering and Management, Oklahoma Institute of Technology, Oklahoma A&M. Here is Engineer Thuesen.

—PP—

Engineering is utilitarian. With few exceptions, its use is restricted to aiding people in satisfying their wants. In this respect, engineering is an economic pursuit. Its aim is to get the greatest end result per unit of expenditure.

The previous statement is a statement of the equation for efficiency, output over input. The engineer is concerned with two levels of efficiency.

On the first level, there are physical efficiencies expressed as output divided by input of such physical units as BTU's, kilowatts, and foot pounds.

On the second level, there are economic efficiencies. These are usually expressed in terms of economic units of output divided by economic units of input, each expressed in terms of a medium of equivalence such as money.

Physical efficiencies never exceed one hundred per cent, but economic efficiencies can exceed one hundred per cent, and economic undertakings are not successful unless they do.

In the evaluation of an engineering venture, economic efficiency must always take precedence over physical efficiency. This is because the function of engineering is to manipulate the elements of one environment, namely the physical, as a means of creating utility in a second environment, namely the economic, which has to do with the desires of people and is therefore a segment of the social environment.

Engineers who work exclusively in the physical environment, and there are those who counsel that this is an ideal goal, are in a responsive position. The initiative for the usage of engineering, if it is to be used at all, does not rest with those who concern themselves with the physical aspects of engineering. It rests with those who concern themselves with its economic consequences and, therefore, its social consequences.

To be creative and to maintain the initiative in the application of engineering, engineers must operate in both the economic and physical environments. Based on compensation received by engineers, one must conclude that society has greater need for the services of those who operate predominately in the economic than in the physical environment.

With few exceptions, the compensation of those who are in purely technical pursuits is comparatively low. Engineers are leaving technical positions in great numbers to engage in more lucrative commercial and managerial activities, some of which are related to engineering, but many of which are not. There appears to be nothing in the present shortage of technical personnel that "money will not cure."

It is the writer's view that the engineering profession will not reach its fullest development until economic and physical factors attain equal status as attributes of engineering in the minds of engineers, employers, engineering educators, and the general public.

The reason for this lies in the fact that engineering is utilitarian, and the initiative for its application lies with those who accept responsibility for its economic success. Could it be that a failure to recognize this fact is the reason why little impetus for professional development has come from a long history of engineering technical societies?

—PP—

We write a lot in these columns about unity of the profession, but more and more letters on the subject come in. This is good. Of all problems facing the profession, perhaps unity should take precedent over all. Selected to be printed this month is a unity discussion from Engineer Edward W. Klein, Jr., P.E., of Atlanta, Ga. Engineer Klein:

—PP—

There is frequent discussion at Chapter level and on a National level of the Unity proposals of the Engineering Joint Council. Little background information seems available, and the membership perhaps wonders about the cause of the apparent conflicts.

The NSPE was formed in 1934. Its objectives are given as follows:

1. To be an active and effective organization devoting its entire efforts to the professional, ethical, economic and social aspects of engineering.

2. To be a national organization composed exclusively of all registered professional engineers from all branches of the profession.

3. To establish a single, powerful voice which will speak for the membership.

4. To provide full participation by all members in an over-all program for the advancement of professional ideals and concepts.

5. To gain public appreciation and recognition of the profession's contribution to progress and welfare.

6. To improve state registration laws and the administration of such laws.

7. To protect and develop the economic and social status of professional engineers.

8. To improve standards of professional conduct through the Canons of Ethics and continuous interpretation of this code in terms of current practice in the profession.

9. To protect the profession and the public against misrepresentation in engineering practices by those not qualified.

10. To foster and stimulate engineering leadership in public service activities on a community, state and national level.

11. To promote the interchange of ideas and suggestions with members of all branches of the profession.

12. To aid the student engineer in the form of more adequate preparation for professional life.

13. To assist young engineers in meeting professional problems.

14. To cooperate with the military establishment to insure maximum utilization of the engineer in time of national emergency.

15. To provide representation in

national, state and local legislative and governmental matters affecting the profession's welfare.

16. To fully and factually report on legislative and legal events with which the profession is concerned.

17. To disseminate complete information and new developments of interest and importance through national, state and local publications.

18. To expand social and recreational contacts for professional engineers.

The E. J. C. was formed in 1942. Its constitutional objectives are as follows:

(a) To advance the general welfare of mankind through the available resources and creative ability of the engineering profession.

(b) To promote cooperation among the various branches of the engineering profession.

(c) To develop sound public policies respecting national and international affairs wherein the engineering profession can be helpful through the services of the members of the engineering profession.

Now the E. J. C. has under serious consideration the expansion of its objectives, recognizing their established trend towards the activities of professional development, maintenance of high professional standards, and improvements in engineering education standards. Towards this end they are even considering the incorporation of the Engineers' Council for Professional Development into E. J. C.

It seems to this observer that the E. J. C. was formed to achieve or, what might be more accurate, has tended since formation to hold, the same general objectives as NSPE. The reason for this duplication must have been a lack of confidence in NSPE on the part of the so-called Founder Societies. Admittedly when E. J. C. was formed, our NSPE was small. Obviously it was considered too small to be representative.

Although the objectives of the two tend to be substantially the same, there is a great difference in the proposed execution of these objectives. Since these two organizations influence public, business, and governmental attitudes towards engineers, it seems that the engineers should have an opportunity to express opinions from the local levels up. This is possible in NSPE, but not so with E. J. C.

The Board of Directors of each NSPE Chapter have a voice in National affairs. The business meetings of our Chapter Boards result in various recommendations which go to State Boards. There, in turn, the State Boards of Directors transmit their recommendations to the National Board of NSPE. Thus, NSPE policies are established in a democratic fashion from the ground up and represent the thinking of the member engineers.

On the other hand E. J. C. is a council of Past Presidents and Secretaries of a few National Technical Societies. They are not required to consult with any other organizations, either at chapter level, or National level. They act independently and, although they are doubtless conscientious and well versed on the social, economic, and political needs of Engineers, they do not truly represent engineering.

E. J. C. has, at present, no paying membership. NSPE has its dues, and a well organized paid staff. E. J. C. holds its offices, borrowed from some of the leading Technical Societies, in New York. NSPE maintains offices, appropriately, in Washington.

E. J. C., though having objectives similar to NSPE, is an outcropping of purely Technical Societies. These Technical Societies fill a need for research, interchange of information, and dissemination of developments in engineering confined to the allotted fields of endeavor. These societies, as some of them contend, should limit their scope to specialized engineering development.

NSPE does not wish to enter into the field of Technical development in engineering. The constitutional objectives and the continuing policies of succeeding administrations illustrate this.

E. J. C. is proposing to expand, incorporating men from more societies than are now included. They propose to include in addition to the existing five societies (*ASCE, AIME, ASME, AIChE,* and *AIEE*) the following society representation:

American Association of Engineers

American Society for Engineering Education

American Society of Heating and Ventilating Engineers

American Society of Refrigeration Engineers

American Water Works Association

Illuminating Engineering Society

Institute of Aeronautical Services

Institute of Radio Engineers

Society of Naval Architects and Marine Engineers

National Society of Professional Engineers

In view of the rapid past growth of NSPE, and its future growth probability, it appears that rather than expanding, E. J. C. should now gracefully retire in favor of NSPE, an organization that has now grown up and which is organized efficiently to accomplish parallel aims.

NSPE members should educate their respective Technical Society Chapters in this matter. The logic is clear and only needs a full presentation. In addition to the reasoning there of course, is the much stronger logic of cost. E. J. C. will cost Technical Society members either additional dues, or decreased technical services.

NSPE should and does refer technical problems to the proper technical societies. In turn these technical societies should not attempt to invade the provinces of NSPE, and that is just what, through E. J. C., they are doing. Continuation means conflict, and conflict can only result in damage to one or both sides and that means hurting rather than helping our profession.

EDWARD W. KLEIN, JR., P.E.,
Atlanta 3, Ga.

—PP—

Voltaire said, "I may not agree with what you say, but I will defend until the death your right to say it." This spirit lights a democracy and a Letter to the Editor is one way it has been put to practical use. Why not send your "Letter to the Editor" to Professional Postscripts now. If you agree or disagree on a subject of general interest to engineers, let us hear from you.

N.S.P.E. Officers

President, JOHN D. COLEMAN, P.E.
Supervisor, Material Utilization
Frigidaire Division—G M Corp.
2520 Elsmere Ave., Dayton, Ohio

Vice President, CLARENCE T. SHOCH, P.E.
Asst. to Vice President, Commercial
Pennsylvania Power & Light Company
901 Hamilton St., Allentown, Pa.

Vice President, DEAN N. W. DOUGHERTY, P.E.
University of Tennessee
Knoxville, Tenn.

Vice President, E. W. SEEGER, P.E.
Vice President, Cutler-Hammer, Inc.
315 North 12th St., Milwaukee, Wisc.

Vice President, C. Y. THOMAS, P.E.
Vice President, Spencer Chemical Company
Kansas City, Mo.

Vice President, T. CARR FORREST, JR., P.E.
Forrest & Cotton, Consulting Engineers
Praetorian Building, Dallas, Tex.

Vice President, WILLIAM D. WILLIAMS, P.E.
Civil Engineer, Headman, Ferguson & Carollo
3308 North Third St., Phoenix, Ariz.

Treasurer, RUSSELL B. ALLEN, P.E.
Professor, Civil Engineering
University of Maryland
4610 Hartwick Road, College Park, Md.

Executives Offices
1121 Fifteenth Street, N.W.
Washington 5, D. C.

Executive Director, PAUL H. ROBBINS, P.E.

With Our Members . . .

Asks Help Of Fellow Engineers

NSPE Member, On Active Duty In Korea, Leads Drive For Starving Children

An NSPE member that the whole society can be proud of is Lt. Col. George A. Bachman, a member of the Reading, Pennsylvania, Chapter.

Colonel Bachman, now on active duty in Korea, has been leading a relief drive to help prevent Korean children from starving or dying of exposure during this coming winter.

In a letter to THE AMERICAN ENGINEER, he asks for the help of his fellow professional, registered engineers in giving the youngsters caught up in the tragedy of war a helping hand.

This is the way Col. Bachman puts it:

"The purpose of this letter is to request assistance in arranging for some Korean children to be a little happier and to help them face the coming winter more adequately.

"Let me give you a little background: Last winter after the infamous Chinese offensive began, thousands of refugees streamed south to Pusan. Among them, as is the inevitable result of war, were many motherless and fatherless children. The young Korean government, whose capacity was already strained to the limit because of the war, struggled vainly to cope with the problems of feeding, housing, and providing medical care for these homeless and bewildered people.

In Terrible Straits

"The plight of many of these people is beyond description. Children can be seen daily running through the streets wearing only a tattered piece of burlap sacking and carrying a tin can with which to beg food. At night they sleep huddled together for warmth, in any protecting doorway or nook offering some form of cover from the weather. There are many orphanages in the Pusan area, but they are not nearly adequate to accommodate the thousands of children that are roaming the streets. These kids have never known motherly love, family fun, and a nice bed with plenty of covers every night. They do the best they can, but they are dying daily because of inadequate food and care. The military personnel here in Korea have done individual work in helping these people along, but the majority of them are suffering greatly."

The personnel of Colonel Bachman's battalion have decided to have a Christmas party for every Korean child they can find, and they are even giving up their evening meal on Christmas Day to make more food available for the party.

Colonel Bachman requests his fellow engineers to help out with food packages, old clothing and toys if they possibly can.

Engineers and chapters who want to help can send parcels to Colonel Bachman at Hq. 296 Trans. Trk. Bn. APO #59, c/o Postmaster, San Francisco, California.

How about it, readers? Why don't we all give the kids a helping hand?

Colorado Society Has Interesting Activities

The Colorado Society has had a busy and profitable month. Member Sam Hawkins was appointed to the License Examiner Committee by Denver's Mayor Newton. Mr. Hawkins also represented the Southwest area at NSPE's National Nominating Committee in Chicago, representing not only Colorado but Texas, New Mexico, Oklahoma and Arkansas as well.

The Society entertained members of the National Council of State Boards of Engineering Examiners at the group's Thirty-first Annual Meeting in Colorado Springs.

Albert E. Zarlengo, outstanding Denver attorney, spoke to the group on *Legal Pitfalls of the Professional Engineer* at a recent meeting. It was designed to help the professional engineer avoid legal snares in handling specifications and contracts. The speech was followed by a question period from the audience.

Be Sure That Bucket Only Holds A Gallon!

The Western Chapter of the Missouri Society issued a novel invitation to its members to a recent meeting. It was to a picnic and social get-together *without benefit of speakers or speeches*. All you have to do, the invitation read, "is to bring your own cup, mug or bucket (limit—one gal. capacity) as refreshments will be furnished."

Do You Know What "P. E." Stands For?

The title "Professional Engineer" connotes a heavy, rigid responsibility on the part of the incumbent. The title rules out of our lives all tendencies to latency, incompetence, apathy and mediocrity. If we shirk our duty, we as individuals are failing in our responsibilities to our profession, to our associates, and to our community . . .

Yes, those two letters, P. E., stand for "par excellence," "performing enthusiasm," "periscopic efficiency," "professional eminence." . . . Any way you look at them, they elevate you to "John Doe, P. E." Can YOU carry the weight?

A. J. B. Fairburn,
President, Lorain County (Ohio) Chapter

Indiana Society Talks About Area Problems

The Calumet Chapter of the Indiana Society devoted a recent meeting to the community transportation problems in its area. Joseph F. Wysong who has done a great deal of work as a preliminary to legislation regarding the problem in the Calumet area, talked to the group.

He outlined a program of grouping the common transportation problems under one central authority, the Lake County Port Authority, as a means of getting unified administration and direction of much needed engineering plans.

Oklahoma Engineer Does Profession Good Turn

An Oklahoma City member, Engineer Ty Dahlgren, recently got in some good public relations plugs for the profession. While Program Chairman of the local Lions Club, Ty scheduled four distinguished members of the Oklahoma City Chapter to speak before the Lions Club on engineering programs and problems facing the city, the *Oklahoma Professional Engineer* reports.

Perhaps other NSPE members could follow Mr. Dahlgren's lead in bringing engineering to the attention of similar groups.

New York Chapter Hears About Methods Of Fighting Smoke

Rear Admiral William S. Maxwell, USN-Retired, was the principal speaker before the New York Chapter of the New York State Society of Professional Engineers at its October meeting.

Admiral Maxwell, Deputy Director of the Bureau of Smoke Control of New York City, discussed *Smoke Control and Enforcement.* On a participating panel were William G. Christy, Director of the Bureau of Smoke Control, and Arthur C. Stern, Chief Engineer of the New York State Division of Industrial Hygiene.

Alabama Society Makes Engineers' Week Plans

At a recent annual business meeting of the Alabama Society plans were arranged for the celebration of Engineers' Week. A state-wide banquet on Saturday, February 28, 1953, will highlight the affair. An outstanding engineer guest speaker will be named shortly to speak at the banquet, reports F. T. Payne, the group's Public Relations Committee Chairman.

NSPE Member Named Mechanical Engineering Head At Ohio State

Professor S. M. Marco, a past president of the Franklin County Chapter of the Ohio Society, has been named chairman of the Department of Mechanical Engineering at Ohio State University, it was announced by President Howard L. Bevis.

Professor Marco is the co-author, with his teaching colleague Aubrey Brown, of the textbook *Introduction to Heat Transfer.* He has written numerous papers for professional journals and has served as a consulting engineer to a variety of industrial firms.

Atlanta Chapter Holds Family Picnic

Atlanta Chapter of the Georgia Society was recently host to the members and their families at the chapter's Fourth Annual Picnic at North Fulton Park, Atlanta.

More than two hundred attended. George L. Word, Jr., was general chairman. The affair is a regular annual free party for the members, including wives and children, held in afternoon and evening.

Chapter Gets Charter

The Westmoreland Chapter of the Pennsylvania Society recently received its charter in ceremonies at Greensburg. The Charter was presented by Donald C. Peters, Vice President of the State Society.

Shown, left to right, are: Roy W. Jacobs and C. Edward Long, Chapter Directors; John P. Ringler, Treasurer; Peter P. Lombardo, President; Leonard J. Schnupp, Vice President; Donald C. Peters, Vice President of the State Society; John Y. Woods, State Director, and Frank G. Sciullo, Secretary.

Arkansas Society Praised By Dean Of Engineering

George F. Branigan, Dean, College of Engineering, University of Arkansas, has written a word of thanks to the Arkansas Society in a recent issue of the *Arkansas Engineer.*

Freshman enrollment in engineering is nearly twice what it was last year at the college, Dean Branigan says. "I want to thank those members of the Arkansas Society of Professional Engineers who helped publicize the shortage of engineers. Your good work is bearing fruit," he reports.

Cleveland Chapter Tours Auto Plant

The Ceveland Chapter of the Ohio Society held a recent meeting at the new Chevrolet Plant in that city. The group went on an inspection tour of the plant, one of the largest of its kind in Ohio. Pressed metal parts, power glide gear assemblies, and truck axles are made there with the latest machinery and best working condition improvements.

Chacey Writes Review On NSPE Survey

Lloyd A. Chacey, Executive Director of the Ohio Society, has written an editorial about NSPE's first Executive Research Survey (How to Improve Engineering-Management Communications) in the bulletin of the Ohio Engineer's Placement Service, Inc.

H. S. Perry, manager of the service, feels that the report may be of interest to AMERICAN ENGINEER readers.

Tulsa Chapter Backs "House Of Magic" Show

The Tulsa Chapter of the Oklahoma Society teamed up with the Engineers Club of Tulsa to jointly sponsor the recent General Electric "House of Magic" show. The "House of Magic" was a collection of mystifying demonstrations of "magic" illustrating that sober scientific fact can be stranger than fiction. The general public was invited to this demonstration as well as the families and friends of the engineers of the area.

Steel's Story Told

"The Story of Stainless Steel," a sound and color film presentation of the Repulbic Steel Corporation, was shown to members of the San Joaquin Chapter of the California Society at a recent meeting.

Attractive Committee Chairmen

The Mahoning Valley Chapter of the Pennsylvania Society has an active Ladies' Auxiliary which assists the chapter in many of its activities. Chairmen of the various committees make a mighty attractive group.

Shown, left to right, are (front row): Mrs. Wayne Ault, Program; Mrs. Paul R. Duffey, Membership; Mrs. Frank D'Isa, Social; Mrs. H. W. Cook, Financial. In the back row: Mrs. Richard B. Waugh, Publicity; Mrs. William Plantes, Civil Defense; and Mrs. Robert Bryan, Projects.

Franklin County Chapter Receives Its Charter

The Franklin Chapter of the Pennsylvania Society was awarded its charter as the newest member of the State. Executive Secretary John T. West presented the charter to Chapter President Bernard Smith. Mr. West spoke about engineering salaries, maintaining that they aren't as high as they should be. His speech was entitled *The Worker and His Hire.*

The new Chapter has plans in the offing to initiate a refresher course for engineers.

Pittsburgh Chapter Hears Steel Executive

The Pittsburgh Chapter of the Pennsylvania Society held its annual dinner meeting at the University Club recently. John L. Young, Vice President In Charge of Engineering of the United States Steel Company, was the speaker. J. B. Carlock of the Loftus Engineering Corp., was toastmaster.

Pennsylvania Engineers Appointed By Governor

Two NSPE members were appointed by Pennsylvania Governor John H. Fine to a committee to study and revise the Pennsylvania Building Laws and Regulations.

They are William F. Lotz, Jr., of Philadelphia and Leland W. Cook, of Pittsburgh, who will serve as engineer members of the group.

New York Society Holds Fall Meeting; Coleman Attends

The New York Society recently held its two day autumn meeting at Niagara Falls as guests of the Niagara Chapter. John D. Coleman, NSPE President, and Arnold Dutton, New York, NSPE Director, attended as special guests.

Martin J. Travers, Vice President of the Marine Trust Company and President of the American Bankers' Association, spoke to the group on *Inflation.* John F. McManus, Executive Assistant to the Dean of Engineering of Cornell University, spoke on *Trends in Engineering Education.*

An interesting sidelight to the regular business of the meeting was the tour of the Niagara Mohawk Schoelkopf Power Station.

Pardee New President Of Iron Ore Ass'n

Franklin G. Pardee, State Director from the Grand Valley Chapter of the Michigan Society, has been named President of the Lake Superior Iron Ore Association. Mr. Pardee is a registered Mining Engineer and has held a post as State Geologist to the Michigan Department of Conservation for a number of years. He has also been a U. S. Mining Consultant in Brazil, Geological Advisor to the Peruvian government, and has conducted ore research studies of the Amazon River Basin.

With the Ladies

By MRS. WILLIAM FELL
Chairman, NSPE Ladies' Auxiliary Committee

Newest auxiliary to be reported is the Panhandle Chapter auxiliary at Amarillo, Texas. Mrs. L. J. Roberts of Amarillo is President.

The Texas Society now has ten active chapter auxiliaries and is considering the possibility of organizing a state auxiliary. Big project of the year for the Panhandle group will be playing hostess to the Annual Meeting of the State Society in January.

The auxiliary to the Central Oklahoma Chapter of OSPE opened the 1952-53 season with a Registration Tea at the home of Mrs. Earl W. Gray of Oklahoma City, according to Mrs. Harold Pickens, President. With 117 members on its roster the auxiliary anticipates a marked increase as activities get under way. These ladies will be hostesses to the Annual Meeting of OSPE in February. In addition to social activities the organization is planning to launch at least one civic service this year. Under consideration is the sponsorship of a special Blood Donor Recruitment, with one drive scheduled in the Fall and another during Engineers' Week next February.

One of the auxiliary members, Mrs. J. Roy Black, has accepted an appointment to serve as Secretary to the NSPE Ladies' Advisory Committee this year.

Mrs. M. H. Allen, Jr., Vice-chairman of the NSPE Ladies' Auxiliary Committee, reports that she can fill requests for the model constitution and "Suggested Steps for Organizing." Her husband has mimeographed a number of copies for her. (Nice family cooperation here.)

Mrs. Allen, a member of the Neuces Chapter TSPE, Corpus Christi, Texas, was selected vice-chairman to represent the Southwest Area on the advisory committee during the Annual Meeting in Tulsa. Her address is 1201 Annapolis, Corpus Christi, Texas. Selection of vice-chairmen for the other areas of NSPE is in process and it is expected that announcement of these may be made soon.

We hope that all the auxiliaries will subscribe for the AMERICAN ENGINEER and send in news for this column.

District Of Columbia Chairmen Named

President Paul Dell'Aria of the District of Columbia Society has appointed committee chairmen for the coming year. Mr. Dell'Aria's lieutenants will be: E. M. Woods, Legislative Committee; Max Morris, Membership; V. J. Richter, Public Relations; Mrs. Hilda Edgecomb, Constitution and By-Laws; W. H. McCartha, Education; Herman F. Lame, Inter-Society Relations; Herman Mezger, Rules and Resolutions; Charles Curran, Program; and Herbert Mannuccia, Young Engineers.

Central Illinois Group Hears About Metaphysics

Bob Schwartz, Chairman of the Attendance Committee of the Central Illinois Chapter, reports a recent meeting at which E. O. Crawford discussed *The Future of Engineering in Metaphysics.*

The Women's Auxiliary held an annual Men's Night Pot Luck supper followed by a Little Theatre Guild presentation of *Heaven and Earth.*

Ohioans Have Outing

Members of the North Central Chapter of the Ohio Society were guests of the Killbuck Sand & Gravel Company at their last meeting. It was an old-fashioned "outing" with all the trimmings, including horseshoe pitching and trap shooting as well as an informational inspection tour of the Company's new plant and a demonstration of a new Hot-Mix plant of the Jones Asphalt Paving Co.

Topeka Starts Newsletter

The Topeka Chapter of the Kansas Society has just begun a newsletter for members. At the first fall meeting of the chapter, Dean DeWitt Carr of the University of Kansas School of Engineering, a chapter member, spoke on *The National Shortage of Engineers and What the University of Kansas is Doing to Relieve It.*

Delaware Member Host To European Engineers

William A. McWilliams, National Director of the Delaware Society, was host to a group of eleven bridge and highway engineers from various European countries recently. He took the group on an inspection tour of the Delaware Memorial Bridge.

Held At LaCrosse

Wisconsin Society Meeting Attended By 200; National Leaders Speak

More than 200 engineers and their wives attended the sixth conference of the Wisconsin Society in LaCrosse recently.

R. C. Clark, President of the Badger State group, presided at the business sessions. National President John D. Coleman of Akron, Ohio, spoke on problems facing the engineering profession throughout the nation. Commenting upon the shortage of engineers, Mr. Coleman prophesied that the problem will become more acute. The key to the puzzle is to use the talents of professional engineers at their maximum effectiveness and free them from sub-professional tasks which should be left to others, Mr. Coleman declared.

At Wisconsin Meeting

A record crowd of Badger State engineers recently got together for the Wisconsin Society's summer meeting held at LaCrosse, Wisconsin. Here the engineers gather around John D. Coleman of Akron, Ohio, President of the National Society of Professional Engineers. In a talk before the group, Mr. Coleman predicted that the current shortage of engineers now plaguing the nation will "get worse before it gets better."

Shown in the picture are, front row: President John D. Coleman, left, and Richard Clark, President, Wisconsin Society. Back row: l. to r., are Carl Wahlstrom, President, Western Chapter; Paul H. Robbins, Executive Director, NSPE; Lawrence Kehow, Vice President, Western Chapter, and National Vice President E. W. Seegar.—Photo courtesy the *LaCrosse Tribune.*

The Wisconsin Society announced that the 1954 Annual Meeting of the National Society will be held in Milwaukee and plans are already made for the event.

A boat trip up and down the Mississippi River through the scenic vacationland surrounding LaCrosse was popular with all delegates.

Paul H. Robbins, Executive Director of the National Society of Professional Engineers, pointed out in a talk before the group that recognition is being won before Congress and other governmental bodies with registration being used as a definition of professional engineering in many regulations and statutes.

Mr. Robbins asserted that the movement to establish engineering as a recognized profession is growing more potent each year.

Ted Neubauer, Chief Development Engineer of the Trane Company, LaCrosse, spoke on *Atomic Energy and The Engineer* at the evening session. Mr. Neubauer was prominently associated with the Manhattan project which developed the first atomic bomb. The ladies program was under the chairmanship of Mrs. Arthur Christensen.

Half As Old As Buckeye State

Ohio Society Will Celebrate Its 75th Anniversary During Engineers' Week

The Ohio Society released a resolution coordinating the celebration of its 75th Anniversary, Engineers' Week (February 22-28), and the 1953 Ohio Sesqui-centennial.

The Ohio Diamond Jubilee celebration of the founding of the Ohio Society follows Engineers' Week by only a few days, March 5, 6 and 7, so it has been decided to set aside a period from February 22 through March 7, 1953, as an opportune time to demonstrate the outstanding progress of the engineering profession during Ohio's 150 years as a state.

The state of Ohio was admitted to the Union in 1803. Seventy-five years later, in 1878, the Ohio Society of Professional Engineers was founded and the two having lived to ripe old ages, 150 years and 75 years of age respectively, will enact their memoirs of progress and growth together.

New Jersey President Union County Guest

Robert Morrison, Publicity Chairman of the Union County Chapter of the New Jersey Society, reports that the new officers for 1952-53, R. Olsen, I. Mencher, G. Haskew, C. Zimmer, J. Baxter and F. Cooper were introduced to the Chapter membership at the first meeting of the year.

State President Louis Frazza spoke to the group and strongly urged professional engineers to join and support their respective chapters and advance the dignity of their profession.

New Jersey Engineer Tells Of Power Problems

The Monmouth-Ocean Chapter of the New Jersey Society held a recent meeting at Crystal Brook Inn, Eatontown.

Lawrence Wagner, Program Chairman, introduced the speaker, Robert H. Sims, Assistant to the Superintendent in Charge of Operations of the Jersey Central Power and Light Company. Mr. Sims spoke on *Planning for the Future Growth of the Jersey Central Power and Light Company*. A film entitled *Freedom and Power*, preceded his talk. Mr. Sims stated that the population in the New Jersey shore area has increased 38% in the past ten years, whereas the national increase in population, during that time, has been only 7%. This has necessitated stepped-up future planning in electric utility to meet the increased demand, he said.

NSPE Members Honored At NCSBEE Convention

At the Thirty-first Annual Meeting of the National Council of State Boards of Engineering Examiners held in Colorado Springs, George C. Hahn, an NSPE member, was an honored guest at the annual banquet. He represented NSPE at the meeting.

Two distinguished NSPE members, A. G. Stanford of Atlanta, Georgia (Past President of NSPE) and Stanley G. Palmer, Dean of Engineering, University of Nevada, were named to the highest offices. Mr. Stanford was elected President and Dean Palmer Vice President of the Council.

Ohio Engineers Hold Conference In Akron

The Northeast District Conference of the Ohio Society was held recently in Akron with OSPE President R. A. Freese, Akron Chapter President O. E. Sords, and OSPE Vice President C. P. Smith officiating.

John D. Coleman, NSPE President, and Ohio's National Director, R. E. Allen, spoke to the group on the following subjects: *The Ohio Society in the National Picture* and *Are You Doing Your Part?*

Mayor Charles E. Slusser of Akron welcomed delegates to the city at luncheon. A Firestone Tire and Rubber Co. official, H. H. Waters, Director of Engineering, spoke on *Engineering Responsibilities in the Future.*

Idaho Group Hears Atomic Engineer Speak

Members of the Idaho Society at a recent quarterly conference heard a description of the monitoring system used by the U. S. Atomic Energy Commission in connection with its atomic weapon tests. Dr. G. Victor Beard, Director of the Health-Physics Division of the Idaho operations office, was the speaker.

One hundred twenty-one monitoring stations have been established at weather bureau stations across the nation to study samples of radio-active dust.

Lorain County Group Takes Leaf From AE

The recent meeting of the Lorain County Chapter of the Ohio Society was like a page from the AMERICAN ENGINEER come to life. The group heard Charles T. White, Jr., and L. T. Haldeman of the Goodyear Company discuss the controversial Riverlake Belt Conveyor. (The September AMERICAN ENGINEER carried a story on this belt-line, planned to move coal from the Ohio River to Lake Erie and iron ore from the Lake to the river.)

Lorain County is a likely spot for the proposed Lake end of the conveyor and the subject is of vital importance to the engineers of the area.

Philadelphia Chapter Has Good Membership Idea

The Philadelphia Chapter of the Pennsylvania Society has come up with a clever membership drive promotion entitled *One For You In '52.*

It is a listing of all professional engineers in the Philadelphia area who are NOT associated with PSPE. Members are urged to contact these engineers and urge their participation in the benefits of Chapter membership.

Lehigh Valley Hears Talk About Alaska

The Lehigh Valley Chapter of the Pennsylvania Society heard a slide film talk on Alaska and the Alaskan Highway at a recent meeting.

Edward G. Mrozek, Superintendent, Building Department, Irvington, New Jersey, was the speaker. Mr. Mrozek has first hand information on the subject. He served as Company Commander of H&R Company, 97th Engineers, in Alaska and as Commanding Officer, Fairbanks Headquarters, Alaskan Highway during the war.

Two Ex-Monroe County Prexys Get New Jobs

Two Past Presidents of the Monroe County Chapter of the New York Society have new posts. Harold Mosher has been appointed to the Membership Committee of NSPE and Louis Sforzini was elected to the State Society's Executive Committee.

Plan Membership Drive

Tony Foderaro, Lehigh Valley Chapter Membership Committee Chairman, announces a big drive in that area of Pennsylvania. Plans are being made to contact every Registered Engineer not already a Chapter member and explain the many values of membership.

(*Continued from page* 17)

or higher branches of physics every day does not, in any way, mean that he is still not a clerk. Whether a man uses calculus instead of arithmetic is not the criterion of an engineer. To be sure, there are different levels of operation, but clerks are still clerks.

Proper utilization of engineers, therefore, has to take into account such important concepts as what opportunity is involved in the job to make a contribution to the better living and happiness of humanity. An engineer of vision in tasks seemingly below his scientific dignity makes those tasks into the most important of technical operations. These are the people who advance the world. The person who makes a better buggy is to be congratulated but the fellow who makes the jump from buggy to automobiles and then to jet airplanes is even more to be congratulated.

Years ago, when automobiles first started, I can imagine that most businessmen operating a busy carriage plant would hardly assign their best engineers to "fooling around" with automobiles. They would consider that poor administration. The evidence has since indicated the opposite to be true.

To use another example of how we may go astray on utilization let me point out that the need today is not necessarily for more airplanes, though that may be the impression that you get from reading the papers. The need is for *better* airplanes. Let your imagination run to the point that you could conceive of a plane that was one-hundred miles per hour faster than any the Russians could put out, and that shot a tracer bullet which could follow the enemy plane and explode when it came into close proximity. Then, consider that the enemy had nothing like this and no means of stopping it. I think it would be clear to you that a handful of such planes would be sufficient to rid the sky of the enemy regardless of any superiority in numbers he might have. Let us not, then, be led into the idea that better utilization of engineers means giving them technical tasks even though these tasks do involve higher mathematics. The goal of the profession should always be to put people into tasks that will encourage them to develop a growing edge, to constantly broaden their horizons so that they may have a true professional outlook and can get beyond a status quo philosophy of building things.

The problem of better utilization is hardly one big problem but rather a multitude of little problems which take the best skill and judgment that management can muster.

Now, there is a third, much misunderstood, area in the field of professional engineering. That is the position of the sales engineer. The notion contantly arises that sales engineering is the lowest of engineering tasks. The A.I.E.E., for instance, has for many years frowned upon the idea of advancing sales engineers from the grade of Associate to that of Member, from Member to that of Fellow. We see, constantly, that professors in the schools direct their ablest students away from Sales.

To further establish this point, let me read to you an excerpt from an Engineering Joint Council Newsletter: The quotation is taken from a speech given by H. H. Anderson, Vice President of the Shell Pipe Line Company entitled, "Conservation of Manpower and Materials."

> "*Use the Sales Engineers:* From their ivory towers certain operators' engineers look upon sales engineers as glad-handing nuisances. And sometimes they are right. In my youth a sage remarked: 'Two hybrids have no place in the oil business—the salesman who poses as an engineer, and the engineer who poses as a salesman'! But the modern sales engineer is schooled to give the consumer real technical help in the application of his specialty. Also, they can give information on what others are thinking and doing. Most of us rely heavily upon him. Others who habitually view him askance are wasting much of their company's time doing needless work, and are perhaps missing many bets."

It has been said that if a donkey had a God it would be another donkey. No doubt, we all like to develop other people along the lines of our own successes, or at least our own hopes. However, some point can be made for the fact that the most professional of professional engineers is the good, technical salesman. Let me illustrate:

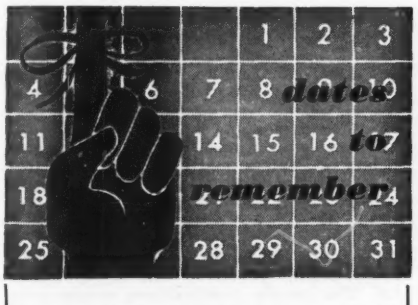
Some years ago when one of my associates first started his career, he wanted to go into the field of strictly engineering. Like many other people, he found a useful career in sales. One of the first lessons he learned was a lesson in what I consider to be the essence of the professional approach.

His district office used to get a lot of orders for centrifugal pumps. It was his idea that he should take the orders, send them to the factory at once and enter the sales credit immediately to his account. His superior said, "No," that in each case, he should check with the buyer and find out something about why he wanted a pump; why he wanted the pressure and the capacity that he indicated; what kind of troubles he had had in the past; what his previous experience had been pumping the particular liquid involved, etc. In other words, we should rise above the level of a clerk. Perhaps, the man didn't need a pump at all. Perhaps his whole conception of his problem was incorrect. There might be an easier way to do the job or a more economical way.

A good sales engineer is probably more important than any other individual in advancing technology in America. He is constantly alert to the problems of the field, to better ways of doing things. He is everlastingly making suggestions to the customer and the factory and I am convinced has much more to do with the technological advance of this country than is commonly supposed.

There is very little that does not pass through his hands. The situation reminds me of an experience one of our salesmen had in a high, windswept region of some western mountains during a blizzard. He stopped at a little service station to buy some gas from a weatherbeaten character. During conversation, he asked rather facetiously if it snowed much around

(*Please turn the page*)



Virginia Society of Professional Engineers — Annual Meeting, November 7, 8. Jefferson Hotel, Richmond, Virginia.

NSPE Board of Directors Meeting—November 7, 8. Jefferson Hotel, Richmond, Virginia.

North Dakota Society of Professional Engineers—Annual Meeting, November 14, 15. Minot, North Dakota.

Indiana Society of Professional Engineers—Annual Meeting, December 5, 6. Gary Hotel, Gary, Indiana.

Idaho Society of Professional Engineers—Annual Meeting, January 16, 17. Hotel Boise, Boise, Idaho.

Texas Society of Professional Engineers—Annual Meeting, January 21, 24, Amarillo, Texas.

Oklahoma Society of Professional Engineers—Annual Meeting, February 6, 7. Biltmore Hotel, Oklahoma City, Oklahoma.

Alabama Society of Professional Engineers—Annual Meeting, February 22-28, (Engineers' Week), Birmingham, Alabama.

Minnesota Society of Professional Engineers—Annual Meeting, February 25, 26. Lowry Hotel, St. Paul, Minnesota.

(*From previous page*)

there. The character hollered back above the storm, "Nope don't snow much 'round here, but an awful lot passes through."

The salesman is not daunted by obstacles. So many of the strictly clerical-minded technicians make statements like these: "I could accomplish something around here if it weren't for the chief engineer who doesn't agree with me." Imagine, a good engineer saying anything like that—or thinking anything like that. He recognizes that the real problem in many tasks is that of selling your superior on your ideas. The good sales engineer knows that Hero had a steam turbine running three-hundred fifty years before Christ but that no one had a sufficient sales engineering approach to see that it was put to practical use and developed for the good of humanity.

Engineers can be exasperatingly smug about their great part in the development of the machines and devices which are so much a part of our present day lives. The lack of commercial understanding; the inability of engineers to devote their talent to economic use is constantly one of the most difficult problems with which firms using engineers is confronted.

In conclusion let me state that most engineers I know certainly want to see the Professional Engineering Society become a great and powerful organization working towards the good of industry which, in turn, must always work toward the greater happiness of everyone.

A vice president of General Motors, a couple of years ago, told this story at a meeting in Detroit. It is apropos to all that I have had to say.

It seems that his father was a blacksmith and in the fall of the year during harvest season, the work load was heavy in the shop. Many times they had to shoe horses well on into the evening. The only light available was the flickering light of the forge and a kerosene lantern which he had to hold for his father. His father would say to him, "Son, you hold the light so that you can see, then I can see, too." That is the "why" of the National Society of Professional Engineers, to "hold the light so you can see, then other engineers can see, too."—***End.***

Superintendents & Project Managers Training Course

All instruction by mail. Send today for sample lesson and complete details.

GEO. E. DEATHERAGE & SON
5 E. Preston St., Baltimore 2, Maryland

Chapters & States Sent Utilization Report Publicity Kits

"As a first step in our publicity program for the Second Executive Research Report on the better utilization of engineers, all chapters and states have been sent publicity kits for their local use," C. G. Roush, Chairman, National Public Relations Committee, announced recently.

The kits were sent to all leading officials and gives them the opportunity to order bulk copies of the new report at reduced prices. The important publication will be off the presses about November 10 and the release date for all local and national publicity is December 1.

The second report was prepared under the supervision of the Society's Professional Engineers' Conference Board for Industry, and has already gained much favorable comment from industrial leaders who reviewed draft copies of the book.

The report is the result of a survey of more than 500 leading firms. It covers the causes of the shortage and what, in a practical sense, can be done about it.

LEGAL NOTICE

STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233).

Of American Engineer published monthly at Baltimore, Maryland, for December, 1952.

1. The names and addresses of the publisher and editor are: Publisher, National Society of Professional Engineers, 1121 15th St. N. W., Washington, D. C.; Editor, Kenneth E. Trombley, 1121 15th St. N. W., Wash., D. C.

2. The owner is: National Society of Professional Engineers, 1121 15th Street, N. W., Wash., D. C.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relations, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semi-weekly, and tri-weekly newspapers only.)

KENNETH E. TROMBLEY, Editor

Sworn to and subscribed before me this 6th day of October, 1952.
(SEAL) MILTON F. LUNCH
(My commission expires September 14, 1957)

WANTED

Graduate registered engineers by well established Middle Western engineering firm as follows: 3 designers of sewage treatment plants, 2 designers of water purification and softening plants, 1 architect, 3 highway bridge designers. Replies will be received in confidence. Excellent working conditions including pension plan, group life insurance, Blue Cross insurance and liberal bonuses under a profit sharing plan. Excellent opportunities for substantial progress for well qualified men.

Box 100
AMERICAN ENGINEER
1121 15th St., N.W., Washington 5, D. C.

Welding Connectors

Saxe Welding Connection Units position and secure structural parts to be welded.

Clip K3A permits an adjustable connection.

These widely used units eliminate all hole punching, and, with welding, produce the most economical, safe, and quickly erected structural frame.

Write for 1951 edition, Structural Welding Practice Manual.

J. H. WILLIAMS & CO.
Buffalo 7, New York

AIR REDUCTION CANADA, LTD.
Montreal 2, Canada

ARE YOU ABOUT TO RETIRE?

You may need to retire from your profession but you *need not* retire from Life, from interests, from friends of all ages. It is easy to retire in Florida. Let us send you free, full details and new color booklet on Gainesville, Florida, in the heart of Florida's richest year-round farm and grove lands. You can add to your retirement happiness a dependable income from truck gardening, flower growing, cattle or poultry production. Low-cost land, mild climate, good fishing, cultural activities galore. In addition the University of Florida at Gainesville offers courses in many fields for people of *retirement age*. Your experience in life may meet all admission requirements to enroll as a student.

Gainesville is a friendly town and a warm welcome awaits you.

Write today for full, free details.

Address Chamber of Commerce
Room 104
Gainesville, Florida

Society Review Sent To Members

The general membership of N.S.P.E. will shortly receive a comprehensive and attractive report outlining the programs, activities and accomplishments of N.S.P.E. during the administrative year which concluded this summer.

L. L. Dresser, P.E., of Tulsa, Oklahoma, who was N.S.P.E.'s president during the year covered by the report, states in his introduction that professional engineers are pioneers in a profession which is seeking to develop itself through service to humanity.

Specifics of the review are set forth by allocation among four major divisions which are the constitutional objectives of the National Society; professional, social, economic, and ethical advancement of the profession, plus a section on internal administrative items. Some of the highlights covered are: exemption of professional engineers from federal salary control, the first Executive Research Survey Report on engineering-management communications, National Engineers' Week, National Society policy on recall of engineers to active military duty, civil defense, guidance to high school students, salary and fee studies, ethics and procedure on negotiation of engineering contracts.

The report also contains a financial statement covering the corresponding administrative year and the current 1952 budget. Other internal items report on membership growth, new state societies, assistance to chapters and publication problems.

A number of members of the Executive Committee, who reviewed the report prior to publication, commented that the many activities and accomplishments of the Society at all of its three levels should be more widely understood and known by the general membership. It is hoped that the report will serve this purpose and impress each member with the wide scope of his Society's interests for the benefit of the membership and the profession.

It has also been suggested that the members may double the value of the report by giving it or sending it to a non-member of his acquaintance after he has read it, together with a note inviting his non-member friend to learn of N.S.P.E.'s accomplishments and affiliate with the organization working to advance the standing and prestige of all professional engineers.

Officers

(*Continued from page* 19)

Colorado Engineering Council, Rocky Mountain Sewage Works Association.

Since 1949 he has operated his own consulting engineering firm.

DEAN N. W. DOUGHERTY, again nominated for the Vice Presidency of the Southeastern Area, was born at Hales Mill, Virginia, in 1886. He received a B.S. degree from the University of Tennessee in 1909, and a C.E.

Dean N. W. Dougherty

degree from Cornell University in 1913. In 1914, he was graduated with a M.C.E. degree from Cornell University. He is a member of Sigma Xi, Tau Beta Pi, Phi Kappa Phi and Chi Epsilon. Professionally, he has held membership in the A.S.C.E., A.S.E.E., A.A.A.S., Newcomen Society, Tennessee Academy of Science, Southern Association of Science and Industry, and N.S.P.E.

His offices have included Director, A.S.C.E.; Vice President and member of Council S.P.E.E.; Chairman, Tennessee State Board of Architectural and Engineering Examiners; and he is presently Chairman of the N.S.P.E. Foundation Funds Committee and the Resolutions Committee.

RUSSELL B. ALLEN has been named for a sixth time to serve as Treasurer. Raised in New Haven, Connecticut, Allen received his B.S. in Civil Engineering from Yale in 1923. His association with the University of Maryland began in 1933. In 1945 he was given the title of full professor.

Registered both in Maryland and Connecticut. Allen has been active in the affairs of the Maryland Society, was Secretary-Treasurer from 1938 to 1940. President from 1941 to 1943 and a National Director of NSPE for a number of years.

He has been President of the Executive Committee of the Maryland Chapter of the American Association

Russell B. Allen

of University Professors; is a member of Phi Gamma Delta, Society for Promotion of Engineering Education, and American Concrete Institute.

Nominating Group Names Men for Jobs

The NSPE Nominating Committee, with Past President Sidney L. Stolte as chairman, has submitted its nominations for officers of the Society for the administrative year, 1953-54.

Named as a nominee for the top position as President of the Society is Mr. T. Carr Forrest. Jr., of Dallas, Texas. The affable, well-known Southwestern engineer long has been prominent in professional and technical circles. He has been head of his own consulting firm in Dallas for many years.

Vice Presidential nominees include Engineers Clarence T. Shoch, Northeastern Area; Edwin W. Seegar, Central Area; Christopher Y. Thomas, Northcentral Area; N. W. Dougherty, Southeastern Area; Orland C. Mayer, Western Area, and Alfred J. Ryan, Southwestern Area.

Committee Chairman Stolte asked all members to study the biographical sketches of the nominees on these pages so that voting in December can be accomplished intelligently.

When you receive your ballot, be certain to vote for your Society officers.

Member State Societies' Officers and Directors

Alabama

Pres., Wallace J. McRoy, 2129 7th Ave., N., Birmingham, Ala.
Sec., H. K. Weaver, 504 Watts Bldg., Birmingham, Ala.
Nat. Dir., Leonard W. Peterson, 812 Fifth Ave., N., Birmingham, Ala.

Arizona

Pres., Dario Travaini, 69 W. Wilshire Dr., Phoenix, Arizona.
Sec. Trea., H. H. Brown, 929 W. Lynwood, Phoenix, Ariz.
Nat. Dir., W. A. Burg, 108 W. Elm Dr., Phoenix, Ariz.

Arkansas

Pres., Beverly E. Ryan, 203 Midland Ave., Little Rock, Ark.
Sec., Edward G. Smith, 2922 Fair Park Blvd., Little Rock, Ark.
Nat. Dir., R. J. Rhinehart, 411 Main St., Pine Bluff, Ark.

California

Pres., George E. Zelhart, 2007 Farris, Fresno, Calif.
Sec., Clyde N. Bradley, 446 Blackstone, Fresno, Calif.
Nat. Dir., Oliver Deatsch, Rt. 6—1436, Modesto, Calif.

Colorado

Pres., Hugh W. Hempel, 1733 California St., Denver 2, Col.
Sec., George C. Hanson, 601 Insurance Bldg., Denver, Col.
Nat. Dir., Alfred J. Ryan, 1340 Glenarm Pl., Denver, Col.

Connecticut

Pres., John J. Macchi, 53 Preston St., Hartford, Conn.
Sec., John Hamill, 54 Crest St., Wethersfield, Conn.
Nat. Dir., Henry Pfisterer, 111 Whitney Ave., New Haven, Conn.

Delaware

Pres., Ernest S. Van Demark, 506 Rodney Court Apts., Wilmington, Del.
Sec., Henry S. Mauk, 116 Cleveland Ave., McDaniel Heights, Wilmington, Del.
Nat. Dir., William A. McWilliams, 43 Division St., Dover, Del.

District of Columbia

Pres., Paul S. Dell'Aria, 5209 25th Rd., N., Arlington, Va.
Sec., Michael Godfrey, P.O. Box 585, Benj. Franklin Sta., Washington 4, D. C.
Nat. Dir., Joseph H. Powers, 1750 16th St., NW, Washington, D. C.

Florida

Pres., Stanley Warth, Southern Bell T & T. Co., Jacksonville, Fla.
Sec., C. D. Hartman, P.O. Box 1005, West Palm Beach, Fla.
Nat. Dir., E. A. Anderson, 1301 Court House, Miami 32, Fla.

Georgia

Pres., Ray L. Sweigert, Georgia Institute of Technology, Atlanta, Ga.
Sec., George M. Normandy, P.O. Box 520, Atlanta 1, Ga.
Nat. Dirs., Roy J. Boston, 12 Capitol Square, SW, Atlanta 3, Ga.; Orbie Bostick, P.O. Box 4569, Atlanta 2, Ga.

Idaho

Pres., Ellis L. Mathes, Dept. of Highways, 603 Main St., Boise, Idaho.
Sec., W. Purdy Eaton, 1704 Harrison Blvd., Boise, Idaho.
Nat. Dir., Orland C. Mayer, 1220 Idaho St., Boise, Idaho.

Illinois

Pres., A. Douglas Spicer, 138 Payson Ave., Kewanee, Ill.
Asst. Sec., P. E. Roberts, 631 E. Green St., Champaign, Ill.
Sec., H. E. Babbitt, 204 Engineering Hall, Urbana, Ill.
Nat. Dirs., Wm. A. Oliver, 218 Engineering Hall, Urbana, Ill.; George DeMent, Rm. 1940, 20 N. Wacker Dr., Chicago 6, Ill.

Indiana

Pres., E. G. Hinshaw, 240 N. Meridian St., Indianapolis, Indiana.
Exec. Sec., Thelma G. Patterson, 1131 Circle Tower Bldg., Indianapolis, Indiana.
Nat. Dir., L. Eugene Easley, 6511 Evanston Ave., Indianapolis, Indiana.

Kansas

Pres., Abram Pratt, 705 Crawford Bldg., Topeka, Kansas.
Sec., James E. Myers, 1111 East Central, Wichita, Kansas.
Nat. Dir., Walter G. Johnson, 1831 Medford Ave., Topeka, Kansas.

Maryland

Pres., James J. O'Donnell, 1531 Windemere Ave., Baltimore 18, Maryland.
Sec. Treas., William G. Robertson, Jr., Henry Adams, Inc., 2315 St. Paul St., Baltimore 18, Md.
Nat. Dir., Owen W. Turpin, 1004 N. Charles St., Baltimore, Md.

Massachusetts

Pres., Charles T. Chave, Stone & Webster Engineering Corp., 49 Federal St., Boston 7, Mass.
Sec., Fred A. Sawyer, Stone & Webster Engineering Corp., 49 Federal St., Boston 7, Mass.
Nat. Dirs., Edwin R. Gardner, 4 Walnut Rd., Swampscott, Mass.; Ernest L. Blair, Stone & Webster Engineering Corp., 49 Federal St., Boston 7, Mass.

Michigan

Pres., Paul S. Calkins, 23230 Power Rd., Farmington, Mich.
Sec., Robert L. Wells, 100 Farnsworth Ave., Detroit 2, Mich.
Nat. Dirs., A. F. Plant, 227 Curtis Bldg., Detroit, Mich.; Otto H. Hall, 1414 Sunnyside, Lansing 10, Mich.

Minnesota

Pres., Charles E. Doell, 3954 Bryant Ave., S., Minneapolis 8, Minn.
Exec. Sec., Hal E. McWethy, 1000 Guardian Bldg., St. Paul, Minn.
Nat. Dirs., M. C. Peterson, 5524 Moran Ave., S., Minneapolis, Minn.; T. S. Thompson, 1246 University Ave., St. Paul, Minn.

Missouri

Pres., C. Myron Lytle, Box 679, Kansas City, Missouri.
Exec. Sec., Clifford Wood, Box 365, Jefferson City, Mo.
Nat. Dirs., Prof. Joe Butler, Missouri School of Mines, Rolla, Mo.; Garvin H. Dyer, 123 W. Kansas St., Independence, Mo.

Nebraska

Pres., John D. Griffith, 954 South 58th St., Omaha, Nebraska.
Sec., John P. Rossie, 7712 N. 31st St., Omaha, Neb.
Nat. Dir., Edward Foster, 4360 Nicholas St., Omaha 6, Neb.

Nevada

Pres., George Von Tobel, 214 S. 2nd St., Las Vegas, Nev.
Sec., R. C. Barger, Box 338, Henderson, Nevada.
Nat. Dir., Robert Millard, 909 Canyon St., Ely, Nev.

New York

Pres., Edward J. Nunan, 31 Woodward Ave., Buffalo 14, N. Y.
Exec. Sec., Herald Beckjorden, 1941 Grand Central Terminal Bldg., New York, N. Y.
Nat. Dirs., C. Arnold Dutton, 75 W. Mohawk St., Buffalo 2, New York; Thomas M. Linville, 1147 Wendell Ave., Schenectady 8, N. Y.

New Jersey

Pres., Louis F. Frazza, 225 Bamford Ave., Hawthorne, N. J.
Sec., Treas., Merle Powers, 86 E. State St., Trenton, N. J.
Exec. Dir., Charles J. Dodge, 86 E. State St., Trenton, N. J.
Nat. Dirs., Leo K. McKee, 16 McLaren St., Red Bank, N. J.; Frank P. Cooper, 416 Maple Pl., Cranford, N. J.; Merton S. Adams, 9 Oakland Ave., Trenton, N. J.; W. Earl Christian, Netherwood Ave., Box 215, Rt. 2, New Brunswick, N. J.

New Mexico

Pres., Charles E. Barnhart, 2722 Hyder Dr., Albuquerque, N. M.
Sec. Treas., Dr. T. T. Castonguay, Chem. Engrg. Dept., Univ. of New Mexico, Albuquerque, N. M.
Nat. Dir., Walter K. Wagner, 412 Lafayette Pl., Albuquerque, N. M.

North Carolina

Pres., W. F. Freeman, 116 East Commerce St., High Point, N. C.
Sec., Frank B. Turner, Box 923, Raleigh, N. C.
Nat. Dir., M. F. Wooten, Jr., 215 Latta Arcade, Charlotte, N. C.

North Dakota

Pres., R. H. Myhra, Box 112, Minot, N. D.
Sec., Treas., Joseph Kirby, 827 13th St., Bismarck, N. D.
Nat. Dir., George Teskey, 714 Avenue E, Bismarck, N. D.

Ohio

Pres., R. A. Freese, 1516 Keith Bldg., Cleveland, Ohio.
Exec. Sec., Lloyd A. Chacey, 40 W. Gay St., Columbus, Ohio.
Nat. Dir., Robert E. Allen, 401 Leo St., Dayton, Ohio.

Oklahoma

Pres., G. W. McCullough, Phillips Chemical Co., Bartlesville, Okla.
Exec. Sec., C. S. Worley, P. O. Box 987, Oklahoma City, Okla.
Nat. Dir., Clark A. Dunn, A & M College, Stillwater, Okla.

Pennsylvania

Pres., Ezra K. Nicholson, 1618 Latimer St., Philadelphia, Pa.
Exec. Sec., John T. West, Jr., 228 N. Second St., Harrisburg, Pa.
Nat. Dirs., Ezra K. Nicholson, 1618 Latimer St., Philadelphia, Pa.; J. D. Carpenter, 600 N. Second St., Harrisburg, Penna.; Robert A. Blackburn, 3110 Koppers Bldg., Pittsburgh, Penna.; Allan H. Kidder, 900 Sansom St., Philadelphia 5, Penna.

Puerto Rico

Pres., Alberto Hernandez, P. O. Box 1244, San Juan, Puerto Rico.
Sec., Walter Torres Braschi, Box 187, Hato Rey, Puerto Rico.
Nat. Dir., Alberto Hernandez, Box 1244, San Juan, Puerto Rico.

Rhode Island

Pres., Domenic A. Ionata, 472 Academy Ave., Providence, R. I.
Sec., Louis R. Hampton, 30 Algonquin Dr., Warwick, R. I.
Nat. Dir., Vincent DiMase, 10 Edendale Ave., Providence, R. I.

South Carolina

Pres., C. T. Wise, P.O. Box 960 Greenville, S. C.
Sec. Treas., L. L. Paxson, 219 Rice St., Greenville, S. C.
Nat. Dir., R. K. Rouse, 104 E. Stone Ave., Greenville, South Carolina.

Tennessee

Pres., Lorin B. Allen, 55 McCall Pl., Memphis, Tenn.
Sec., Geo. Flinn, 787 S. Willett St., Memphis, Tenn.
Nat. Dir., Warner Howe, 76 Porter Bldg., Memphis, Tenn.

Texas

Pres., H. P. Mathieu, 1641 Broadway, Lubbock, Texas.
Exec. Sec., Wallace M. Driskell, Jr., 403 Nash Building, Austin, Tex.
Nat. Dir., Elgin B. Robertson, 1339 Plowman, Dallas, Tex.

Utah

Pres., Harold S. Carter, Univ. of Utah, Salt Lake City, Utah.
Sec., George A. Howarth, 1430 Blaine Ave., Salt Lake City, Utah.
Nat. Dir., Walter P. Henoch, 227 South 4th East, Salt Lake City, Utah.

Virginia

Pres., Ernst W. Farley, Jr., 7th & Hospital St., Richmond, Va.
Sec., R. P. Alvey, Jr., 3315 W. Broad St., Richmond, Va.
Nat. Dir., John B. McGaughy, 21st and Llewellyn Ave., Norfolk, Va.

Washington

Pres., L. R. Durkee, 511 New World Life Bldg., Seattle 4, Wash.
Sec., Organization Service Bureau, American Building, Seattle 4, Wash.
Nat. Dir., Howard A. Stingle, E. 3157 30th, Spokane 6, Wash.

West Virginia

Pres., W. O. McCluskey, Jr., P.O. Box 409, Wheeling, West Virginia.
Exec. Sec., Ross B. Johnston, P.O. Box 249, Charleston, West Virginia.
Nat. Dir., Leslie C. Gates, P. O. Box 672, Beckley, West Virginia.

Wisconsin

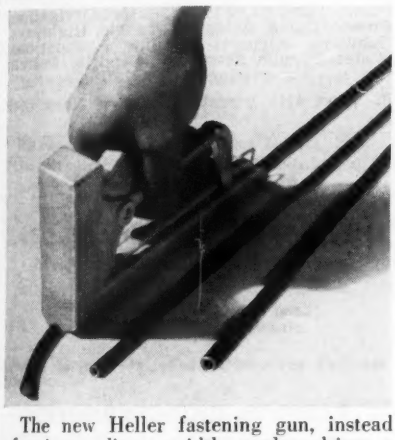
Pres., R. C. Clark, 311 Losey Blvd. N., La Crosse, Wis.
Sec.-Treas., L. E. Peterson, Jr., 601 E. Ogden Ave., Milwaukee 2, Wis.
Nat. Dirs., A. J. Behling, 2326 S. 75th St., Milwaukee 14, Wisc.; George Martin, Metro Sewerage Dept., P.O. Box 247, Green Bay, Wisc.

What's New

As a service to our readers, this column will describe briefly new product developments of general interest to professional enginers. For further information concerning these products, we will appreciate your filling in the coupon provided for this purpose, and mailing it to the American Engineer.

Swift, easy and economical installation of cables and hollow tube lines is provided by a revolutionary new hand-held automatic fastening gun developed by The Heller Stapler Company.

This compact machine is operated with just one hand, leaving the other hand free to guide the lines being installed. Yet it packs the power of a big industrial stapler. Its unusual force will drive bands around cables and tubes into hard or soft woods, plaster walls, flooring, joists and even mortar joints and cinder or mineralite building blocks.



The new Heller fastening gun, instead of using ordinary width staples, drives a special Heller extra-size band with leg lengths varying from 5/16 to 1/2 inch.

This Heller cable fastener is now in use for installation of coaxial cable lines, copper tubing, thermostatic controls, juke boxes, music and intercommunication systems, gas refrigeration and incinerator units, chemical flow controls, transformer separators and many types of heavy wiring. ***Item 1.***

•

Spring-Felt pressure-sensitive tape (felt tape with adhesive on one side), is now available with a duo-purpose adhesive which also provides for permanent attachment, when desired. As it comes from the roll, this new Sprint-Felt adheres tenaciously under light finger-pressure to all surfaces—metal, glass, wood, ceramics. And, for permanent bond, the adhesive merely is moistened with a liquid reactivating agent.

This new optional method of application adds still further to Spring-Felt versatility for many different uses. It seals against dust, air, fumes, moisture; eliminates squeaks and rattles: cushions glass, and desk and bench equipment; damps vibration; impedes electrolysis; resists flame, oil, fungus, mildew. And it cuts cleanly and easily into shapes and gaskets.

It is claimed that Spring-Felt can't be permanently compressed, even under both heat and pressure—that it will not deteriorate; always stays soft and pliable. Made in impregnated-felt and unimpregnated types, and available in colors for show-case assembly, anti-scratch surfacing, etc., it brings new meaning to the "stay-put" speed and convenience with which industry is already so familiar. ***Item 2.***

Koh-I-Noor Pencil Company, Inc., have perfected a line of colored pencils that combine greater strength with superb marking qualities. A newly developed plastic binder imparts a unique, pliable strength without a reduction in the marking qualities. Koh-I-Noor FLEXICOLOR No. 1800 Colored Pencils are made in 24 colors, hexagon, with multicolored end tip and pencil polished to match the color of the lead.

Koh-I-Noor claims that FLEXICOLOR colored pencils will stand up under pressure like firm graphite leads yet will deposit colors like soft crayons. FLEXICOLOR pencils sharpen easily, flex under pressure without breaking, and mark with a smooth, clean cut stroke and leave a deep, opaque color deposit. ***Item 3.***

•

Equipto announces an entirely new highly accessible space saving steel storage files for old records. Besides being extremely compact, they permit use of "sky room" area, thus making maximum use of storage locations. Waste upper space is utilized and more valuable floor area conserved. Aisle space need only be 24″ wide.

Old records are usually saved for five years or more, which means that at least five times the file capacity is needed for them than for current records. Equipto old record files were designed expressly to permit these records to be kept in minimum space. Often they double the capacity in the same floor area.

Records go directly from current files onto shelves in chronological, alphabetical or numerical order. Label holders permit instant location and easy access as there are no cumbersome boxes or drawers to pull out. Units which are equipped with front bases and finished in olive green baked-on enamel are 3′ wide, 7′ or 10′ high, with large choice of depth. Shelves adjust vertically on 1½″ centers to accommodate various size files. Any unit may be removed without moving adjacent units. The assembly is flexible and may be added to as need increases and adjusted to fit changing requirements.

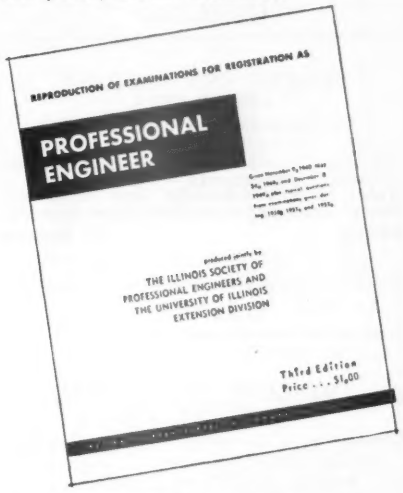
It is fully illustrated in 24-page catalog, #473 which also includes parts bins, drawers and storage handling equipment of many types. ***Item 4.***

Users of deep well turbine pumps, both in industry and agriculture, will find many interesting developments in vertical motor design in a new 16-page Bulletin just off the press featuring U. S. Verticlosed Motors. Numerous design improvements are presented. The Bulletin dramatically illustrates the motor with accompanying drawings of individual features in full color. Engineering data includes discussions of tandem bearings, dual balancing of rotors and the complete motor assembly, use of automatic backstops (of which there are two types) for preventing the motor from spinning backward, comparisons of solid shaft and hollow-shaft designs, description of two types of lubrication and progressive views of pump motors showing their continuous improvement during the past 40 years.

The range of Verticlosed motors extends from 1½ to 400 horsepower. They embody streamlined design, Vis-o-lube oil gauges set flush with the surface, asbestos-protected bearings and normalized castings. ***Item 5.***

•

The new third edition of a book which includes many typical questions from the examinations given by the Department of Registration and Education, State of Illinois, during the past few years, is now available.


REPRODUCTION OF EXAMINATIONS FOR REGISTRATION AS
PROFESSIONAL ENGINEER
THE ILLINOIS SOCIETY OF PROFESSIONAL ENGINEERS AND THE UNIVERSITY OF ILLINOIS EXTENSION DIVISION
Third Edition
Price . . . $1.00

This item of "What's New" does not contain a number. Copies of the book should be ordered directly from the Executive Offices, Illinois Society of Professional Engineers, 631 East Green Street, Champaign, Illinois. Copies are available at the low price of $1.00 each. Remittance should be by check or money order.

AMERICAN ENGINEER
Department S
1121 15th Street, N.W.
Washington 5, D. C.

NOVEMBER

Closing Date, November 30

Please send me { Free literature ☐ / Price information ☐ / More data ☐ } on circled items

1 2 3 4 5

Name ..... Title .....

Company .....

Street .....

City and Zone ..... State .....

Professional Directory

COLORADO

C. M. HATHAWAY
Consulting Engineer

Electrical—Mechanical—Electronic
Product Development—Project Engineering
Production Designs—Planning
Research—Model Work and Pilot Manufacturing

1315 S. Clarkson St. **Denver 10, Colo.**

FLORIDA

SOUTH FLORIDA TEST SERVICE
Testing—Inspection—Research—Engineers

Consultants and specialists in corrosion, weathering and sunlight testing.

4201 N.W. 7th Street **Miami 34, Florida**

GEORGIA

ROBERT AND COMPANY ASSOCIATES
Consulting and Designing Engineers

Industrial Plants—Municipal, Highway and Airport Improvements — Power Plants — Water Supply — Sewage and Industrial Waste Disposal — Appraisals — Reports.

Atlanta **Georgia**

ILLINOIS

CRESCENT ENGINEERING COMPANY, INC.
Contracting & Consulting Electrical Engineers

Design, Supervision and Construction
Process Power and Lighting for Industrial Plants

6455 S. Central Avenue, Chicago 38, Illinois

DeLEUW, CATHER & COMPANY
Consulting Engineers

Transportation, Public Transit and Traffic Problems
Industrial Plants, Grade Separations, Railroads, Subways, Power Plants, Expressways, Tunnels, Municipal Works

150 N. Wacker Drive, Chicago 6 **79 McAllister St., San Francisco 2**

INDIANA

ALVA C. TODD
Consulting Engineer

Communication and Electronics

Brookston, Indiana

KENTUCKY

STEPHEN ARTHUR DERRY
Consulting Engineers

Management — Industrial — Civil
Management and Municipal Problems

PUBLIC RELATIONS
Profit Sharing — Project Engineering
Kentucky Home Life Bldg., Louisville 2, Ky.
Wabash 5667

MICHIGAN

COMMONWEALTH ASSOCIATES INC.
Consulting and Design Engineers

Power Generation
Electric—Gas—Water Systems
Industrial Planning

7 Hayes St. **Jackson, Michigan**

NEBRASKA

BACKLUND and JACKSON
Consulting Engineers

Architectural, Civil,
Municipal, Structural.

4924 Poppleton Avenue
Omaha 6, Nebraska

NEW JERSEY

ENGINEERING DRAFTING SERVICE
S. J. Ozimek—Consulting Engineer

Industrial Bldgs.—Mechanical—Structural—Electrical—Piping—Tools—Machine Design—Product Design—Electronics

38 Park Pl., Newark 2, N. J.

GREER & McCLELLAND
Consulting Engineers

FOUNDATION INVESTIGATIONS

98 Greenwood Ave., Montclair, N. J. **2649 N. Main St., Houston, Texas**

W. W. SLOCUM & CO.
Engineers

Industrial-Design-Management
National Newark Building

744 Broad St. **NEWARK 2, N. J.**

UNITED STATES TESTING COMPANY, INC.

Engineering Testing & Inspection
Development — Research — Consulting

Main Laboratories **Hoboken, N. J.**
Boston, Chicago, Dallas, Los Angeles, Memphis, New York, Philadelphia

NEW YORK

GEORGE H. ELLIOTT & COMPANY
Consulting Management Engineers

521 Fifth Avenue
New York 17, New York

KNAPPEN-TIPPETTS ABBETT-McCARTHY
Engineers

Ports, Harbors, Flood Control, Irrigation, Power, Dams, Bridges, Tunnels, Highways, Subways, Airports, Traffic, Foundations, Water Supply, Sewerage, Reports, Design, Supervision, Consultation.

62 West 47th Street **New York City**

MADIGAN-HYLAND
Consulting Engineers
28-04 41st Avenue

Long Island City, New York

PARSONS, BRINCKERHOFF, HALL & MACDONALD
Engineers

51 Broadway, New York 6, N. Y.

D. B. STEINMAN
Consulting Engineer

BRIDGES

Design — Construction — Investigation
Reports — Strengthening Advisory Service

117 Liberty Street **NEW YORK CITY**

SYSKA & HENNESSY, INC.
Engineers

Design, Reports, Consultation
Power Plant, Disposal Plant, Water Systems

NEW YORK, N. Y.

OHIO

Chicago **Cleveland** **St. Louis**

ADACHE & CASE, ENGINEERS
The Arcade, Cleveland 14, Ohio

Consulting • Design • Reports
• Mechanical • Electrical • Civil
• Industrial Buildings •

PENNSYLVANIA

MICHAEL BAKER, JR., INC.
Consulting Engineers, Surveyors & Constructors

Civil Engineers & Planners, Municipal Engineers, Airport Design, Highway Design, Sewage Disposal Systems, Water Works Design and Operation.

Home Office: Rochester, Pennsylvania

Branch Offices: Jackson, Miss., Harrisburg, Pa., Jeddah, Saudi Arabia

FRAZIER-SIMPLEX, INC.
CONTRACTING & CONSULTING ENGINEERS

Furnace Engineering for the Glass and Steel Industries

436 East Beau Street, WASHINGTON, PA.
U. S. A.

GANNETT FLEMING CORDDRY & CARPENTER, INC.
Engineers

Water, Sewage, Roads, Turnpikes, Bridges, Airports, Traffic, Appraisals.

HARRISBURG, PA.

Philadelphia, Pa. Daytona Beach, Fla.
Pittsburgh, Pa. Medellin, Colombia, S.A.

LAWRIE & GREEN & ASSOCIATES
Architectural and Engineering Offices

321 N. Front Street
Harrisburg, Pennsylvania

Wible Lawrie, Jr., P.E., Consulting Engineer

LOEDDING ENGINEERING CO., INC.
Consulting, Design and Detail

Industrial and Commercial Planning
Bridges, Structures of all Types
Material Handling
Conveyors, Gantry, Overhead and Jib Cranes
Reinforced Concrete and Foundations
Industrial Piping and Ventilation

Economy Bank Building, Ambridge, Penna.

MODJESKI AND MASTERS
Consulting Engineer

F. M. Masters

G. H. Randall — J. R. Giese
C. W. Hanson — H. J. Engel

Design and Supervision of Construction
Inspection and Reports
Bridges, Structures and Foundations

535 Fifth Ave., New York, N. Y. — State St. Bldg., Harrisburg, Pa.

LOUIS W. MOXEY, 3RD
Consulting Engineer

ELECTRIC POWER AND LIGHTING FOR INDUSTRY

DESIGN • REPORTS • SUPERVISION

Architects Building — Philadelphia 3, Pa.

CYRUS WM. RICE & CO. INC.

Consulting Chemical Engineers
Industrial Water and Waste

16 Noble Avenue, Pittsburgh 5, Penna.

EMERSON VENABLE
Chemist and Chemical Engineer

Research — Development
Trouble Shooting

6111 Fifth Ave., Pittsburgh 32, Pa.

TENNESSEE

JOHN J. MORAN
Consulting Engineer

Communications Exclusively
Accounting — Appraisals — Financing — Rate Cases

Engineering of Communications Systems—Additions — Rehabilitation — Maintenance — Relocation of existing systems and associated apparatus and installations.

605 N. Maple St., Cookeville, Tennessee

Memo to Progressive Firms:

Did you know that this Professional Directory Listing has doubled in size in the past year?

Why?

RESULTS!

Write for details NOW:

Advertising Department
American Engineer
1121 15th Street, N. W.
Washington 5, D. C.

NSPE Committee Heads

Advisory Committee on Engineers and Government—Cherry L. Emerson, P.E., Georgia Institute of Technology, Atlanta, Ga.

Awards—E. W. Seegar, P.E., 315 N. 12th St., Milwaukee 3, Wisc.

Budget—T. Carr Forrest, Jr., P.E., Praetorian Bldg., Dallas, Texas.

Building—Oscar Beasley, P.E., 714 14th St., N.W., Washington, D. C.

Chapter Activities—Oliver Deatsch, P.E., Rt. 6 1436, Modesto, Calif.

Constitution and By-Laws — A. H. Kidder, P.E., 900 Sansome St., Philadelphia, Pa.

Education—Clark A. Dunn, P.E., Director, Engineering Experimental Station, Oklahoma A & M College, Stillwater, Okla.

Employment Practices—A. J. Ryan, P.E., 1340 Glenarm Place, Denver, Colo.

Ethical Practices—William D. Williams, P.E., 3308 N. Third St., Phoenix, Ariz.

Evaluation of Objectives—Perry T. Ford, P.E., 197 West Dunedin St., Columbus 15, Ohio.

Extension—Walter Johnson, P.E., 1831 Medford Ave., Topeka, Kan.

Foundation Funds — Dean N. W. Dougherty, P.E., University of Tennessee, Knoxville, Tenn.

Insurance—A. G. Stanford, P.E., 96 Poplar St., N.W., Atlanta, Ga.

International Relations — George J. Nicastro, P.E., 200 Madison Ave., New York, N. Y.

Inter-Professional Relations — C. L. Emerson, P.E., Georgia Tech, Atlanta, Ga.

Intersociety Relations—R. F. Danner, P.E., Okla. Gas & Elec. Co., P. O. Box 1498, Oklahoma City, Okla.

Ladies' Auxiliary—Harry Kennedy, P.E., 1307 Kanawha Valley Bldg., Charleston, West Virginia.

Legislative — Clarence Shoch, P.E., 2129 Walnut St., Allentown, Pa.

Membership—Robert E. Allen, P.E., 1731 Auburn Ave., Dayton, Ohio.

National Affairs—C. Y. Thomas, P.E., 610 Dwight Bldg., Kansas City 6, Mo.

National Defense — Col. Chester Lichtenberg, P.E., 4624 Tacoma Ave., Fort Wayne, Ind.

Nominating—S. L. Stolte, P.E., 1437 Marshall Ave., St. Paul 4, Minn.

Publications—A. C. Neff, P.E., Box 170, Middletown, Ohio.

Public Relations—C. G. Roush, P.E., 1014 Fairfax Bldg., Kansas City 6, Mo.

Registration—R. J. Rhinehart, P.E., 411 Main St., Pine Bluff, Ark.

Reserve Fund — John D. Coleman, P.E., 2520 Elsmere Ave., Dayton 6, Ohio.

Resolutions — Dean N. W. Dougherty, P.E., University of Tennessee, Knoxville, Tenn.

Salary and Fees — Ole Singstad, P.E., 24 State Street, New York, N. Y.

Young Engineers — Robert Blackburn, P.E., 3110 Koppers Bldg., Pittsburgh 19, Pa.

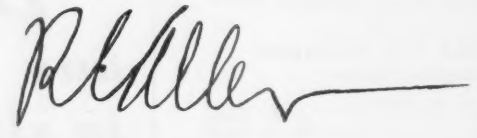
Have You Done Your Part?

IN last month's issue of the AMERICAN ENGINEER the Membership Committee was permitted to use six pages of your magazine in the interest of promoting a greater membership growth. The time, effort and money invested in this effort will be wasted if the members do not respond by taking the steps necessary to place the center-page membership material in the hands of non-members.

We used these pages by asking you—each member—to use the center four pages by filling in the amount of state and chapter dues beside the application form on page 19, addressing the center pages to a non-member in the space provided on page 20 and then mailing the center-page material.

To date the response to this program has been disappointing. The Membership Committee is quite willing to accept this disappointment and learn by experience if the material has been utilized and the non-members who received it were not favorably impressed with our reasons for joining N.S.P.E.

But before we accept this decision as final we are most anxious to insure that the members have cooperated by taking the simple steps suggested and placing our story in the hands of registered engineers who are not presently members. If you have not done your part to assist us in this program, please do it now without further delay. Locate your October issue of the AMERICAN ENGINEER and act now to help us in our important work of building a greater membership.



ROBERT E. ALLEN, P.E., Chairman,
NSPE Membership Committee.

P.S.—If you don't remember the amount of your state or chapter dues call your local Secretary for the information. He may also suggest the name of a registered engineer non-member if you don't know of one.